Meridian 1 and Succession Communication Server for Enterprise 1000

DPNSS1

Installation Guide

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Contents

About this document 7

Integrated Digital Access (IDA) equipment overview 9

DCHI installation and removal 53

Nortel Networks PRI installation and removal . . . 89

Clock Controller installation and removal 121

APNSS installation 139

About this document

This document applies to Meridian 1 Internet Enabled and Succession Communication Server for Enterprise (CSE) 1000 systems.

This document is a global document. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described is supported in your area.

The DPNSS1 Installation Guide is part of the suite of Nortel Networks technical publications (NTPs) designed specifically for DPNSS1 applications.

This guide contains descriptions and schematics of all hardware required to install DPNSS1 and APNSS links.

Who should use this document

The intended audience of the DPNSS1 Installation Guide is all technical personnel charged with installing DPNSS1 networks.

How this document is organized

The DPNSS1 Installation Guide has been arranged in the following sections:

- *IDA equipment overview* - contains a description and schematic of the hardware components required to install DPNSS1 and APNSS links
- *DCHI installation and removal* - describes the procedures required to install and remove the NT5K35, NT5K75, and NT6D11AD DCHI cards

- *PRI installation and removal* - describes the procedures required to install and remove the NT8D72 PRI card and the NTCK43 DPRI card
- *Clock Controller installation and removal* - describes the procedures required to install and remove the QPC775 Clock Controller
- *APNSS installation* - describes APNSS shared mode and dedicated mode configurations, and explains how to set up a modem as required by the APNSS link.

Integrated Digital Access (IDA) equipment overview

Contents

This section contains information on the following topics:

DPNSS1 hardware requirements 10
Hardware requirements for DPNSS Standalone Meridian Mail 14
Engineering note pertaining to port addressing modes 14
APNSS hardware requirements 18
NT5K35, NT5K75, and NT6D11AE/AF DCHI cards 20
NT5K35 and NT5K75 power requirements 20
NT6D11AE/AF power requirements 20
NT5K35, NT5K75, NT6D11AE/AF faceplates 20
NTAG54AA DASS/DPNSS Dual Daughterboard 22
Product compatibility 22
NT8D72 PRI card 23
Power requirements 23
NT8D72 faceplate 23
Carrier interface 24
NTCK43 DPRI 25
NTCK43 faceplate 25
External connectors 27
LEDs 27
Hardware required for DPRI configuration 29

PRI 29
DCHI 30
Clock Controller 30
Other hardware 31
Cabling 31
NTCK43 DPRI carrier interface 36
Clocking configurations pertaining to the NTCK43 DPRI 37
Clock Controller 44
QPC775 44
Schematics for Meridian 1 systems 46
Cabling requirements (non NTCK43 DPRI) 49
Cables and cable lengths 49
Cabling schematic 52

The Integrated Digital Access (IDA) feature provides the hardware and software platform on the Meridian 1 for the support of DPNSS1 signaling protocols. The information contained in this section is defined at the IDA level.

DPNSS1 hardware requirements

The following hardware is required for each DPNSS1 link on Meridian 1 system Options 51C, 61C, 81C, and 81C CP PII:

- one NTAG54 Dual Daughterboard (for NTCK43AB or higher vintages of the Dual PRI)

  or

- one NT5K35 D-channel Handler Interface

  or

- one NT5K75 D-channel Handler Interface - an enhanced version of the NT5K35 which provides up to 160 D-channel port addresses. This card supports two switch-selectable modes of operation — standard mode and expanded mode. Standard mode D-channels may be assigned an input/output port address in the range 0-15; expanded mode D-channels may be assigned port addresses in the range 0-159. Each port has a set of DIP switches allowing full configuration flexibility. See the section entitled "Engineering note pertaining to port addressing modes" on page 14 in this chapter.

  or

- one NT6D11AE/AF D-channel Handler Interface - an enhanced version of the NT5K75 which is fully backward compatible with the NT5K75 and NT5K35. This card supports two switch-selectable modes of operation — standard mode and expanded mode. Standard mode D-channels may be assigned an input/output port address in the range 0-15; expanded mode D-channels may be assigned port addresses in the range 0-159. Each port has a set of DIP switches allowing full configuration flexibility. Please see the section entitled "Engineering note pertaining to port addressing modes" on page 14 in this chapter.

  Note: The NT5K75 and NT6D11AE/AF cannot operate in expanded addressing mode on Meridian 1 Options 21 and 21E.

- one NTCK43 dual-port PRI card (NTCK43AB or higher)

  or

- one NT8D72 Primary Rate Interface card (NT8D72BA is required for EuroISDN applications)
- one QPC949D CPU ROM (up to and including Group G) and NTND08AA CPU ROM (up to and including Group H) are required to support the expanded capability of the NT5K75 and NT6D11AE/AF DCHI
- one of the following cables:
  - — NT5K40AA PRI to Line Terminating Equipment cable (15 pin D-type to twin BNC, 4 meters)

  - NT5K41AA PRI to Line Terminating Equipment cable (15 pin D-type to twin BNC, 8 meters)
  - NT5K86AA PRI to Line Terminating Equipment cable (15 pin D-type to twin BNC, 12 meters, TX shield connected to FGND)
  - NT5K86BA PRI to Line Terminating Equipment cable (15 pin D-type to twin BNC, 12 meters, RX shield connected to FGND)
  - NT5K86AA PRI to Line Terminating Equipment cable (15 pin D-type to twin BNC, 12 meters, TX and RX shields connected to FGND)

- one QCAD328 DCHI to PRI cable
- one NT8D85 ENET to PRI cable
- one QPC775 Clock Controller or NTRB53AA Clock Controller (QPC775 is required on Option 81C systems, and where EuroISDN is being supported.) This cable is required if the DASS2 loop is to be used as a timing synchronisation source for the Meridian 1 PBX.
- one NT8D79AD PRI to Clock Controller cable. This cable is required if the DASS2 loop is to be used as a timing synchronisation source for the Meridian 1 PBX.
- one loop of the QPC414 ENET dual loop network interface card
- for the NTCK43 DPRI card, the following cables are used:
  - NTCK45AA 120 Ohm Dual PRI to I/O Panel cable (8ft)
  - NTCK78AA 120 Ohm Dual PRI cable for ST Machines (50ft
  - NTCK79AA 75 Ohm Dual PRI Coax Cable (40ft)
  - NT8D7217 Dual PRI I/O Panel to Multiplexer cable (50ft)
  - NTCK46AA Dual PRI to DASS/DPNSS NT6D11 DCHI cable (6ft)
  - NTCK46AB Dual PRI to DASS/DPNSS NT6D11 DCHI cable (18ft)
  - NTCK46AC Dual PRI to DASS/DPNSS NT6D11 DCHI cable (35ft)

— NTCK46AD Dual PRI to DASS/DPNSS NT6D11 DCHI cable (50ft)

— Clock Controller cables (1 to 2 port cables):

  – NTCK47AA Dual PRI to Clock Controller cable (2ft)

  – NTCK47AB Dual PRI to Clock Controller cable (4ft)

  – NTCK47AC Dual PRI to Clock Controller cable (6ft)

  – NTCK47AD Dual PRI to Clock Controller cable (8ft)

  – NTCK47AE/AF Dual PRI to Clock Controller cable (10ft)

— Clock Controller Cables (1 to 4 port cables)

  – NTCK81AA Dual PRI to Clock Controller cable (2ft)

  – NTCK81AB Dual PRI to Clock Controller cable (4ft)

  – NTCK81AC Dual PRI to Clock Controller cable (6ft)

  – NTCK81AD Dual PRI to Clock Controller cable (8ft)

  – NTCK81AE/AF Dual PRI to Clock Controller cable (10ft)

Note: Presently, the network loop used for DPNSS1 cannot be odd-numbered if the associated even-numbered loop is programmed as being used for existing peripheral equipment, that is, as TERM, TERD, or TERQ in LD 17. If all peripheral equipment is IPE, this constraint applies only when Meridian Mail is equipped.

Table 1
Programming of network loops

ENET LOOP	ALLOWED					NOT ALLOWED
EVEN	Meridian Mail	PRI	PRI	ANY	---	Meridian Mail
ODD	Meridian Mail	PRI	Meridian Mail	---	ANY	PRI

Hardware requirements for DPNSS Standalone Meridian Mail

To support Standalone Meridian Mail access over DPNSS, a Meridian Mail module and standard attachments are required.

Engineering note pertaining to port addressing modes

There is a distinction between Group G and Group H functionality regarding port addressing modes.

Group G and earlier

Standard address mode (0-15) can be any of the following:

- DPNSS1 (DDSL)
- DASS2 (DDSL)
- APNSS (LSSL)
- Q931 (DCHI)
- ISL (DCHI)
- SDI
- ESDI

Expanded address mode (0-159) can be either of the following:

- DPNSS1 (DDSL)
- DASS2 (DDSL)

The expanded mode addressing has no impact on the standard mode addressing, that is, DPNSS1 D-channel (DDSL) 7 in the expanded mode can exist with the Q931 D-channel (DCHI) 7 in the standard mode.

Theoretically, it is possible to have 160 DPNSS1 D-channels and 16 other I/O devices. In practise, however, there is a limit of 40 addresses in expanded mode and 16 in standard mode, for a total of 56 addresses.

The port address numbers assigned to the NT5K75 and NT6D11AE/AF operating in expanded mode must not conflict with addresses assigned to other I/O port types. To avoid potential conflicts and to simplify system configuration, it is recommended that, in the expanded mode, the port addresses for the NT5K75 and NT6D11AE/AF avoid the standard mode range (0-15) and be numbered in the range 16-159 instead.

Group H and later

Standard address mode (0-15) can be any of the following:

- DPNSS1 (DDSL)
- DASS2 (DDSL)
- APNSS (LSSL)
- Q931 (DCHI)
- ISL (DCHI)
- SDI
- ESDI

If the MSDL is used, standard mode can have a range of 0-63, and can be any of the following:

- Q931 (DCHI)
- ISL (DCHI)
- ESDI

Expanded address mode (0-159) can be either of the following:

- DPNSS1 (DDSL)
- DASS2 (DDSL)

The expanded mode addressing has no impact on the standard mode addressing, that is, DPNSS1 D-channel (DDSL) 7 in the expanded mode can exist with the Q931 D-channel (DCHI) 7 in the standard mode.

Theoretically, it is possible to have 64 addresses using the MSDL with Q931, ISDL, or ESDI, plus 160 addresses using the expanded mode for DPNSS1 for a total of 224 addresses. In practise, however, there is a limit of 64 addresses using MSDL with Q931, ISDL, or ESDI, plus 40 addresses using the expanded mode for DPNSS1, for a total of 104 addresses.

Presently, MSDL does not support SDI ports on DPNSS1 or APNSS, so the likely configuration would involve a mixture of standard mode addressing, MSDL addressing, and expanded mode addressing for DPNSS1. Such an example could be as follows:

0-7 (8 addresses) in the standard mode;

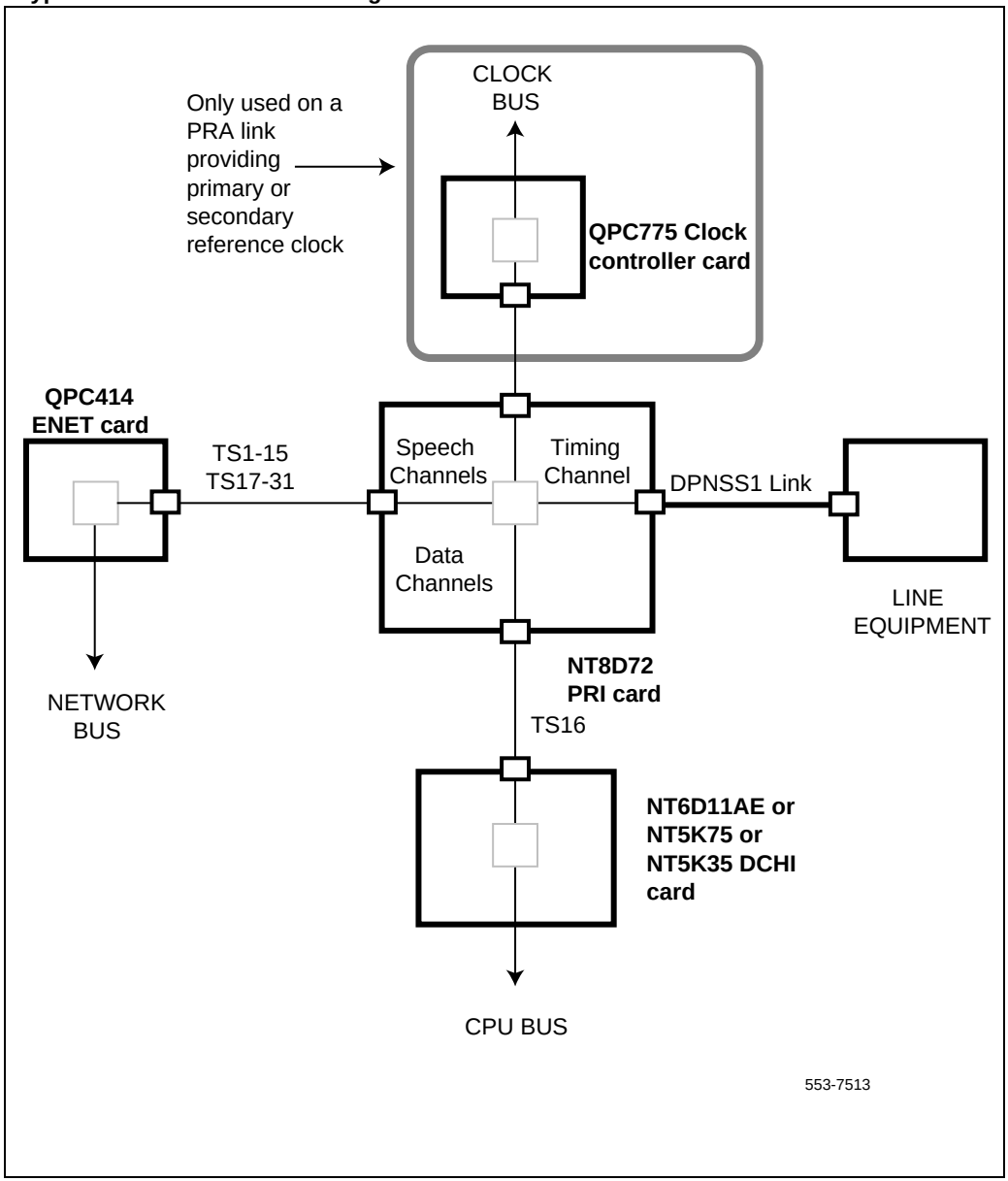
8-15 (32 addresses) in the MSDL mode;

16-55 (40 addresses) in the expanded mode.

The port address numbers assigned to the NT5K75 and NT6D11AE/AF operating in expanded mode must not conflict with addresses assigned to other I/O port types. To avoid potential conflicts and to simplify system configuration, it is recommended that, in the expanded mode, the port addresses for the NT5K75 and NT6D11AE/AF avoid the standard mode range (0-15) and be numbered in the range 16-159 instead.

Figure 1 on page 17 illustrates a typical DPNSS1 hardware configuration.

Figure 1
A typical DPNSS1 hardware configuration



APNSS hardware requirements

The following hardware is required to support APNSS on Meridian 1 system Options 51C, 61C, 81C, and 81C CP PII:

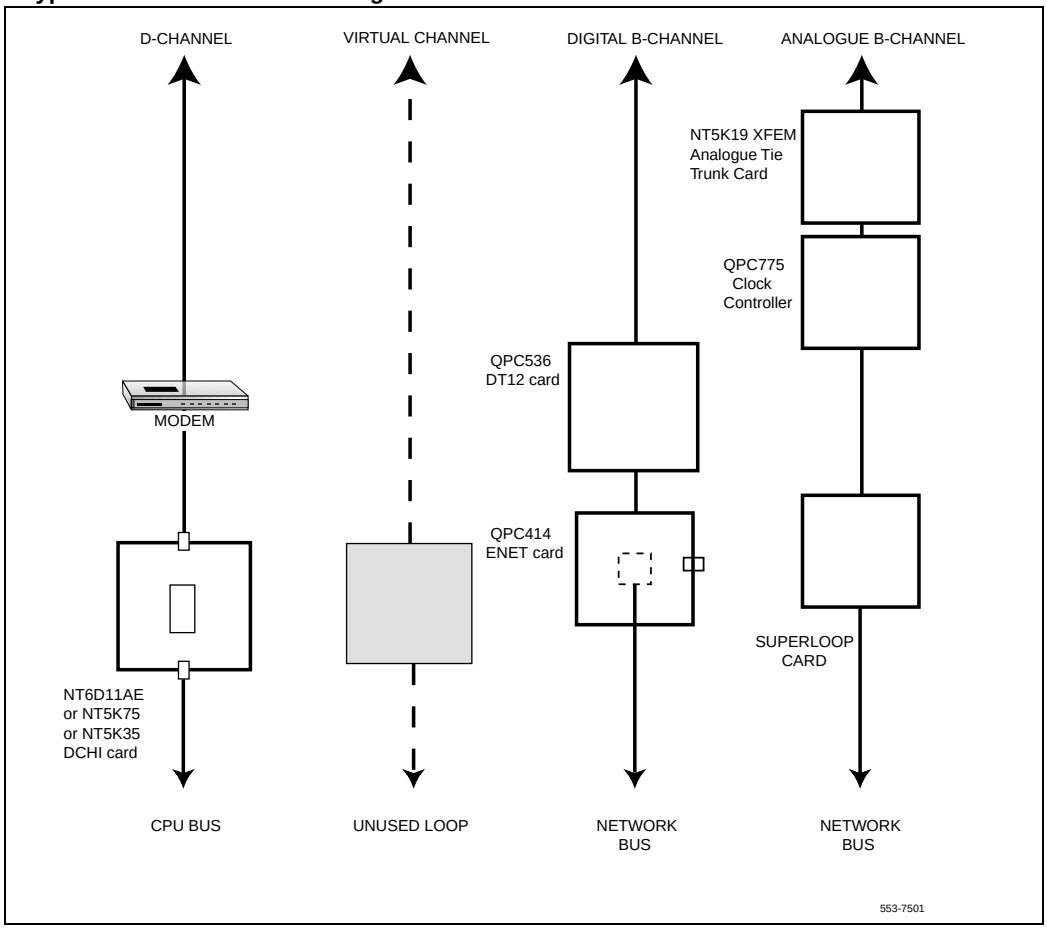
- one NT5K35 DCHI, **or** the NT5K75 DCHI **or** the NT6D11AE/AF DCHI

  Note: Standard mode addressing 0-15 only is allowed for the NT5K75 or NT6D11AE/AF; the expanded addressing mode is not allowed.

- one NT5K19 XFEM Analogue TIE Trunk Card. It is equipped with an Intel 8052-type microprocessor which performs several function, such as card identification, self-test, status reporting to the controller, and maintenance diagnostics. The NT5K19 provides four analogue trunks, the following which may be configured for APNSS: 4 wire E&M Type 1 TIE trunk (DC5), or 2 wire E&M TYPE 1 TIE trunk (DC5).
- either one of the following modems (the list of modems supporting APNSS working is subject to change. Please contact NT Product Management for information specific to a particular requirement):
  - BT 4242VSX modem
  - Datel 4960FTX modem
- one QPC536 DTI2 card
- one 500 set line card

Figure 2 on page 19 illustrates a typical APNSS hardware configuration.

Figure 2
A typical APNSS hardware configuration



NT5K35, NT5K75, and NT6D11AE/AF DCHI cards

NT5K35 and NT5K75 power requirements

The NT5K35 and NT5K75 DCHI power requirements are shown in Table 2 on page 20.

Table 2
NT5K35 and NT5K75 power requirements

Voltage	Worst case consumption
+5 Volt	3.0 Amp
+12 Volt	50 milliamperes
-12 Volt	50 milliamperes

NT6D11AE/AF power requirements

The power requirements for the NT6D11AE/AF are shown in Table 3 on page 20.

Table 3
NT6D11AE/AF power requirements

Voltage	Worst case consumption
+5 Volt	3.0 Amp
+12 Volt	0.75 Amp
-12 Volt	0.75 Amp

NT5K35, NT5K75, NT6D11AE/AF faceplates

The NT5K35, NT5K75 and NT6D11AE/AF DCHIs have one light-emitting-diode (LED), to indicate an active or inactive state, and two external connectors:

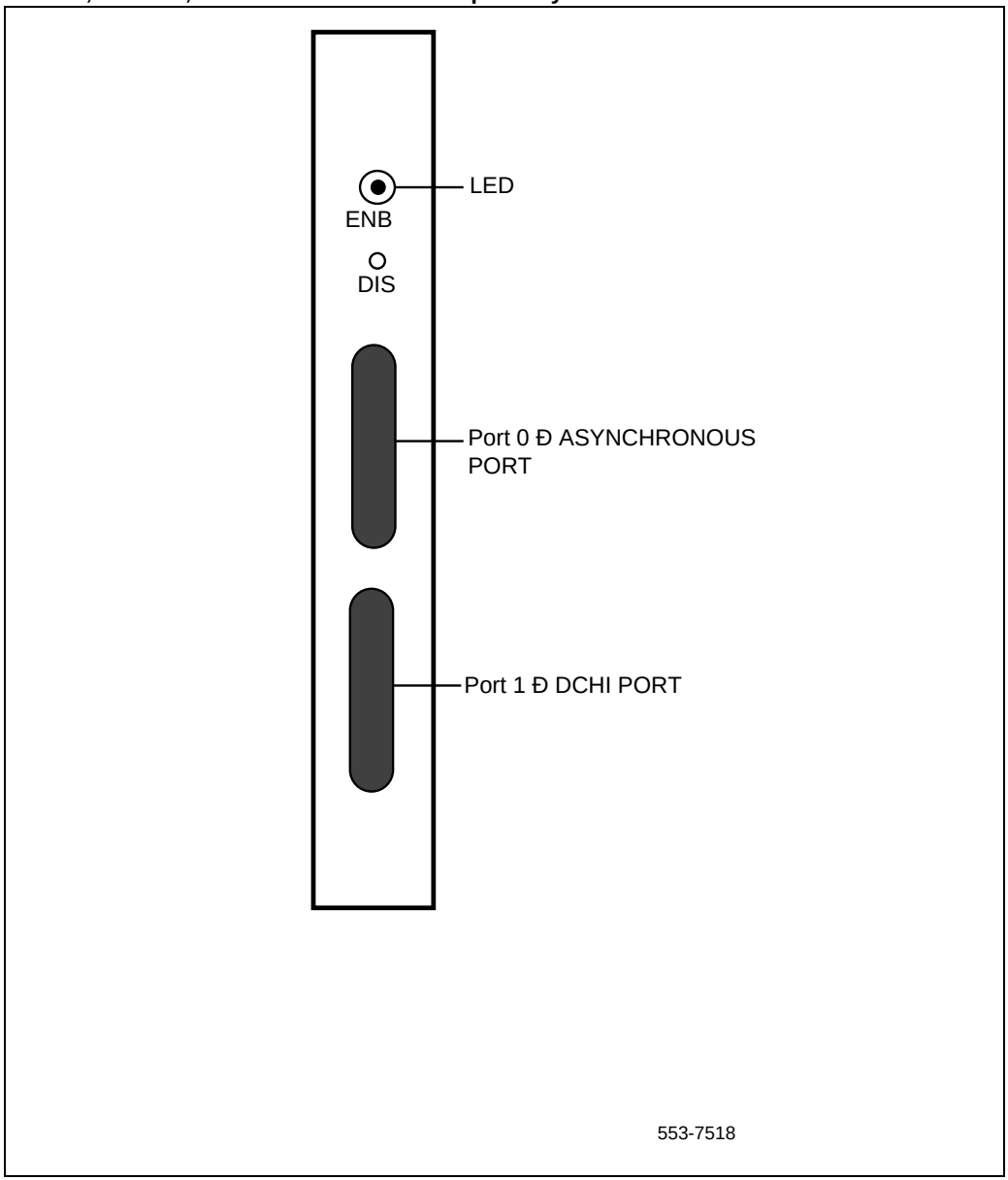
1 Port 0 is a standard asynchronous port providing an interface for non-IDA applications.

Note: This port should only be used for testing or debugging DPNSS1 links.

2 Port 1 is the D-Channel Interface port.

Figure 3 on page 21 illustrates the faceplate layout of the NT5K35, NT5K75, and NT6D11AE/AF cards.

Figure 3
NT5K35, NT5K75, NT6D11AE/AF DCHI faceplate layout



NTAG54AA DASS/DPNSS Dual Daughterboard

The NTAG54AA is a dual (two port) daughterboard version of the NT6D11AF to support DPNSS1/DASS2 applications with the Dual PRI card (NTCK43AB vintage or higher). It is dual density, i.e. it replaces two NT6D11 D Channel handlers, and supports two addressing modes:

- NT or standard mode: 128 I/O ports though only 16 unique addresses are supported by the current software;
- GPT or extended addressing mode: 160 ports available though there is a limit of 40 addresses.

The selection of the addressing modes is done on a port basis through two sets of dip switches which reside on the NTCK43AB Motherboard (refer to the "DPRI switch settings" chapter, in the "DPRI installation and removal" section, for details).

Note: The NTND08AA or QPC949D CPU ROM is required to support the NTAG54AA operating in the expanded mode (GPT addressing).

The NTBK54AA will displace all current NT6D11 cards in Europe. Configuration is identical to the NT6D11.

Product compatibility

The NTAG54AA can coexist with the NTBK50, NT6D11, NT5K35, NT5K75 external DCHI cards (as well as the NT6D80 and NTBK51).

The NTAG54AA is not supported on the NTCK43AA version of the Dual PRI (vintage NTCK43AA or later is required).

The NTBK54AA does not support Q931 applications.

The NTAG54AA is supported with all software releases from Rls 16.67G onwards.

Rls 16.90G is the minimal release required to support GPT extended addressing.

NT8D72 PRI card

Power requirements

The NT8D72 PRI uses power and ground connections from the CE backplane. Power requirements are shown in Table 4 on page 23.

Table 4
NT8D72 PRI power requirements

Voltage	Worst case consumption
+5 Volt	6 Amp
+12 Volt	50 milliamperes
-12 Volt	50 milliamperes

NT8D72 faceplate

The NT8D72 PRI contains five LEDs and six external connectors. The connections are shown in Table 5 on page 23. Figure 4 on page 24 illustrates the faceplate layout of the NT8D72 PRI card.

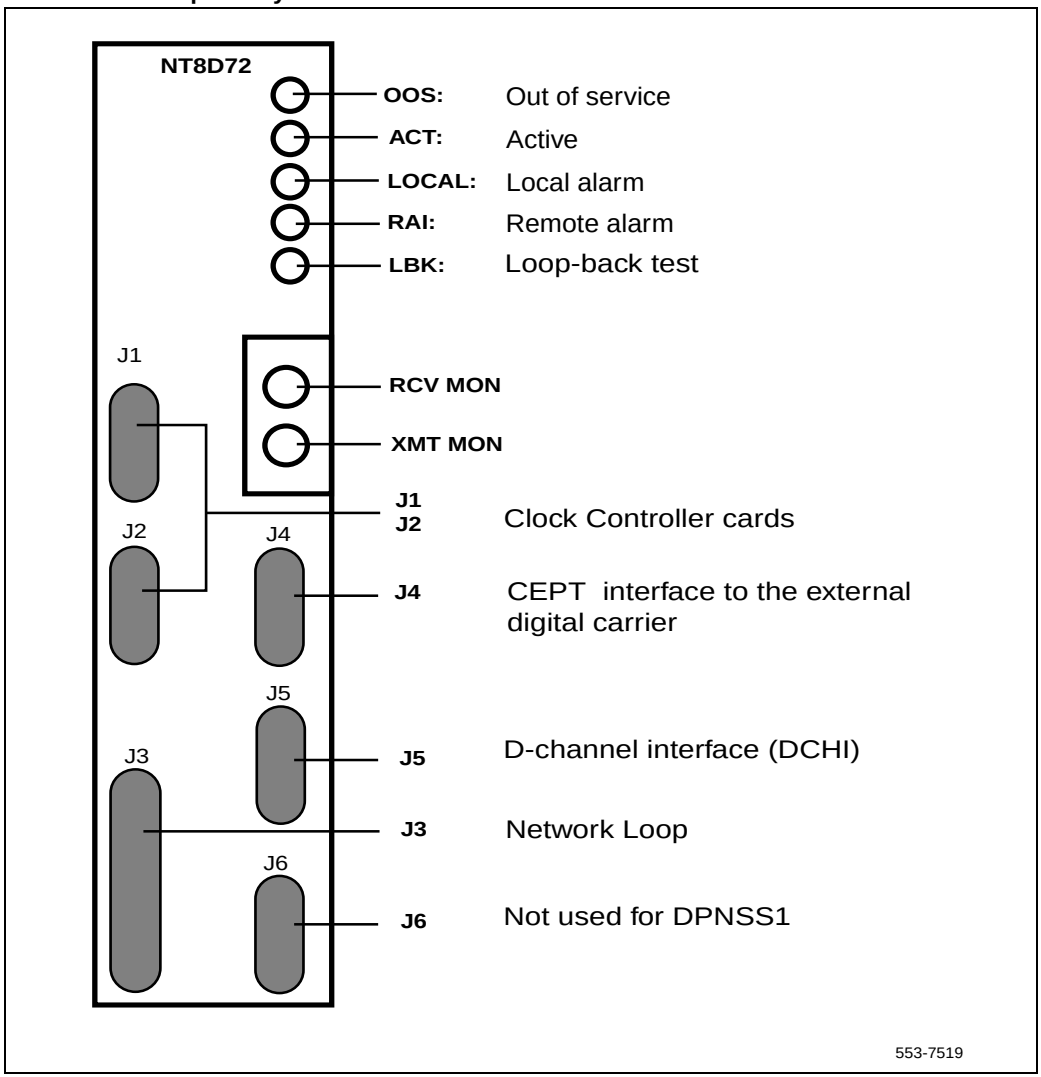
Table 5
NT8D72 PRI - external connections

Faceplate Designation	Type	Connect to
J1	9-pin female, D-connector	CC - CPU 0
J2	9-pin female, D-connector	CC - CPU 1
J3	36-pin connector	Network Loop
J4	15-pin male, D-connector	Line
J5	15-pin male, D-connector	DCHI
J6	15-pin female, D-connector	Not used for DPNSS1
RCV MON	Miniature bantam jack	Test
XMT MON	Miniature bantam jack	Test

Carrier interface

The NT8D72 PRI provides an interface to the 2Mb/s external digital line either directly or through an office repeater or line terminating unit (LTU).

Figure 4
NT8D72 PRI faceplate layout



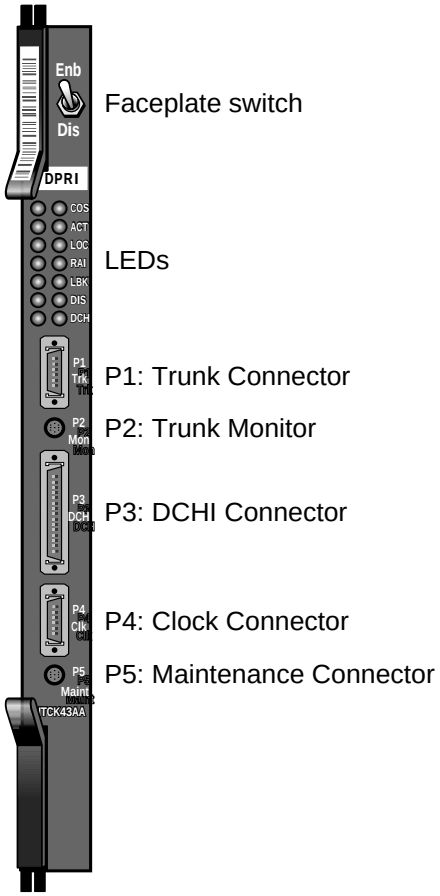
NTCK43 DPRI

The NTCK43 is a dual (two port) 2.0 Mbit Primary Rate Interface card for Meridian 1 Options 51 to 81C. It reduces the PRI footprint by integrating the functionalities of two NT8D72 PRI cards and one QPC414 ENET into one card. The NTCK43 occupies a single Network shelf slot providing two primary rate network connections.

NTCK43 faceplate

The NTCK43 DPRI contain a set of vertical LEDs for each PRI Loop plus one Led giving the DDCH status. The faceplate includes five external connectors of which three are used by the customer. These are the Trunk connection P1, the external DCHI connector P3 and the clock controller connector P4. Figure 5 on page 26 shows the faceplate layout.

Figure 5
NTCK43 DPRI faceplate



External connectors

Table 6 on page 27 gives information about the external connectors located on NTCK43.

Table 6
External connectors on the NTCK43

Faceplate Connector	Connector Type	Description
P1	9-pin female, D-connector	Dual External Trunk Connection
P2	9-pin female, DIN	Monitor Port
P3	26-pin female, D-connector	Dual DCHI interface
P4	15-pin female, D-connector	Clock Controller Port
P5	9-pin female, DIN	Maintenance Port

LEDs

Table 7 on page 28 gives information about the external connectors located on NTCK43 DPRI faceplate. A more detailed description of the LEDs follow.

LED descriptions

Table 7
LEDs on the NTCK43

U0	U1	Abbr.	Description
Red	Red	OOS	Out of Service
Green	Green	ACT	Active
Red	Red	RED	Local Alarm
Yellow	Yellow	RAI	Remote Alarm
Green	Green	LBK	Loopback
Red	Red	DIS	Loop Status OFF = Loop Enabled ON = Loop Disabled
Multi-coloured		DCH	DCH Status OFF = No DDCH Daughterboard Installed RED = DDCH Disabled Flashing RED = DDCH Download in progress

OOS

This red LED indicates that the particular PRI channel is in an Out-of-Service state, having received either the “disable loop” or “enter Out-of-Service state” message from software. This is also the state of both channels after power-up, completion of self-test, and exiting remote loopback mode.

ACT

This green LED indicates that the channel is in the active state, having received the “enable loop” message from software.

RED

This red LED indicates that the channel is in the Local alarm state. This is the state when the channel has a local problem with the received CEPT signal such as Loss of signal, Loss of Multi-frame Alignment, or Loss of Frame Alignment.

RAI

This yellow LED is turned on and off by firmware to indicate that the channel has received either a RAI or an AIS signal from the remote end and notified software that it has persisted but not yet cleared.

LBK

This green LED indicates that the channel is in one of the various per loop loopback states.

DIS

This red LED indicates that the Loop is disabled.

DCH

This dual colour red/green LED indicates that the on-board DDCH is present (red) or is present and enabled (green).

Hardware required for DPRI configuration

The following hardware is required when configuring the NTCK43 DPRI on Meridian 1 Options 51 to 81C.

> ***Note:*** Either the DCHI card or the DPRI card may be installed first. However, DPRI loops must be configured in software before defining DCH links.

PRI

- one NTCK43 DPRI

DCHI

- one externally connected NT6D11 (ISDN PRI and DPNSS1/DASS2 applications)

  Note: For DPNSS1/DASS2 applications, the NTND08AA CPU ROM is required to support the NT6D11AD DCHI operating in the expanded mode.

  For the NT6D11 operating in standard mode, the SDI/ESDI ports must be assigned a unique port address in the range 0-15. The port address numbers assigned to the NT6D11 operating in expanded mode must not conflict with addresses assigned to other I/O port types. To avoid potential conflicts and to simplify system configuration, it is recommended that, in the expanded mode, the port addresses for the NT6D11 be numbered in the range 16-159.

  or optionally

- one NT5K35 or one NT5K75,

  or optionally

- the Dual DASS/DPNSS Daughterboard NTAG54AA (interfaces to NTCK43AB and later)

  Note: The NTND08AA or QPC949D CPU ROM is required to support the NTAG54AA operating in the expanded mode (GPT addressing).

Clock Controller

- QPC471, QPC775, or NTRB53 Clock Controller(s)

For EuroISDN applications, and for use on the Meridian 1 system Option 81 in international markets, vintage QPC77E is required.

Note: The QPC775 Clock Controller card currently is not compatible with Stratum 3 clocking in the U.S.A. Therefore, it is available for only the Canadian and International markets.

Other hardware

Additional hardware may also required for PRI capability and applications. Installation instructions are given in other Nortel Networks publications or supplied by the manufacturer. This additional hardware may include:

- one Channel Service Unit (CSU), or Line Terminating Unit (LTU)
- one office repeater
- one QMT8 Asynchronous Data Module (ADM)

Cabling

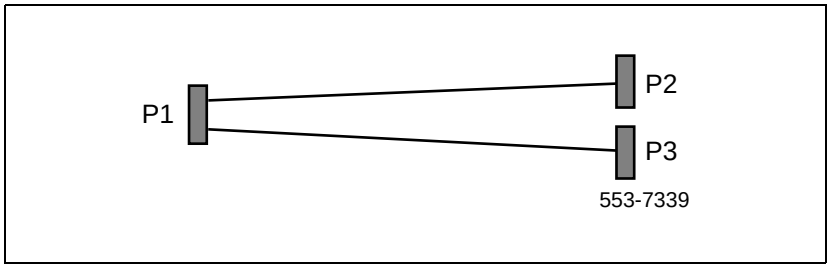
This section lists the types of cable used and the lengths required for internal and external NTCK43 DPRI connections.

DPRI cables

The various cables associated with the Dual PRI are given below. Note that the D Channel and Clock Controller cables have length variations to facilitate different configurations. These cable length variations match the lengths that are presently available for the NT8D72BA.

NTCK45AA

120 Ohm Dual PRI to I/O Panel cable (8ft).



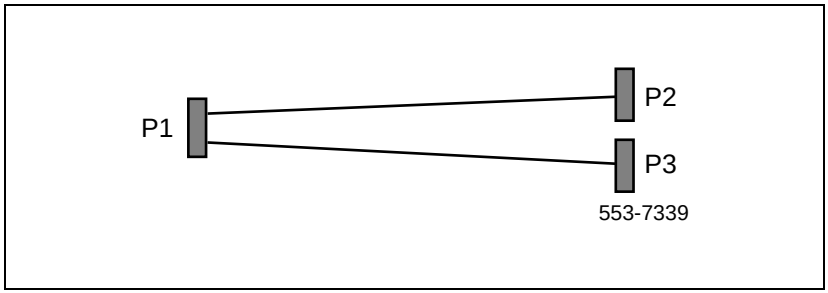
Connector P2 supplies the PRI Trunk connection for Unit 0.

Connector P3 supplies the PRI Trunk connection for Unit 1.

Note: This cable is not used for ST Machines.

NTCK78AA

120 Ohm Dual PRI cable for ST Machines (50ft).



Connector P2 supplies the PRI Trunk connection for Unit 0.

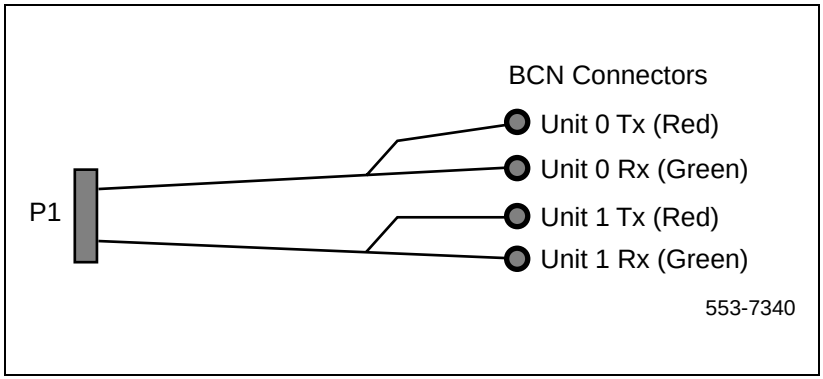
Connector P3 supplies the PRI Trunk connection for Unit 1.

Note: This cable is used for ST Machines only.

NTCK79AA

75 Ohm Dual PRI Coax Cable (40ft)

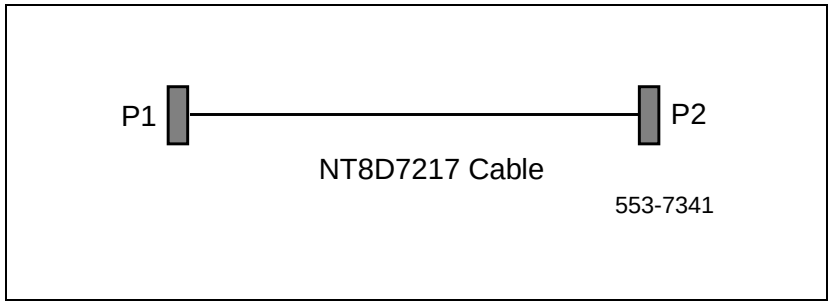
This cable is 75 Ohm Dual Coaxial cable which interfaces to P1 on the faceplate side and to external equipment such as an LIU.



External DPRI cable

NT8D7217

Dual PRI I/O Panel to Multiplexer cable (50ft).



Note: This cable is not used for ST Machines.

External NT6D11 DCHI D-channel cables

NTCK46AA

Dual PRI to DASS/DPNSS DCHI cable (6ft)

NTCK46AB

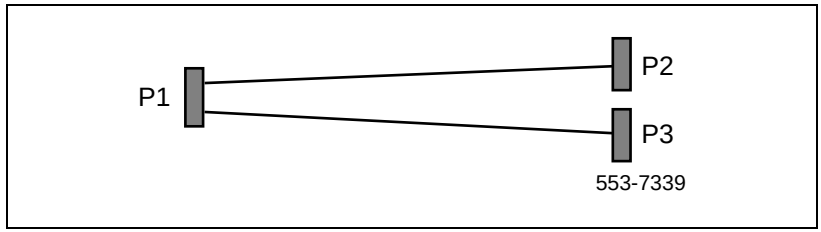
Dual PRI to DASS/DPNSS DCHI cable (18ft)

NTCK46AC

Dual PRI to DASS/DPNSS DCHI cable (35ft)

NTCK46AD

Dual PRI to DASS/DPNSS DCHI cable (50ft)



Connector P2 supplies the DCHI connections for Unit 0.

Connector P3 supplies the DCHI connections for Unit 1.

Clock Controller cables (1 to 2 port cables)

NTCK47AA

Dual PRI to Clock Controller cable (2ft)

NTCK47AB

Dual PRI to Clock Controller cable (4ft)

NTCK47AC

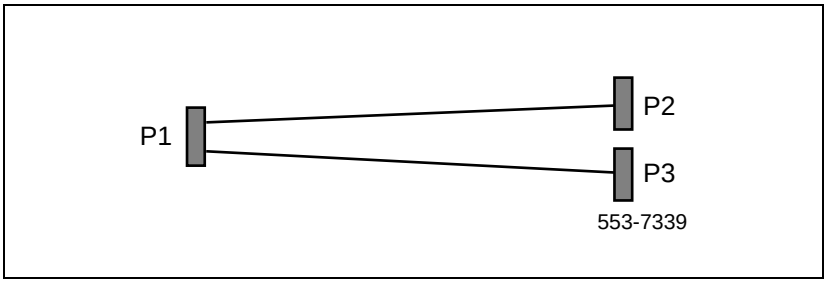
Dual PRI to Clock Controller cable (6ft)

NTCK47AD

Dual PRI to Clock Controller cable (8ft)

NTCK47AE/AF

Dual PRI to Clock Controller cable (10ft)



Cable NTCK47 is the clock control cable used for most configurations. The NTCK47 can be used for all clocking options that use a Single CPU.

It can also be used for all clocking options using a Dual CPU where a Dual PRI provides one of the references and the other reference is provided from a different source, that source being either a different Dual PRI, a NT8D72 PRI or a DTI.

Clock Controller Cables (1 to 4 port cables)

NTCK81AA

Dual PRI to Clock Controller cable (2ft)

NTCK81AB

Dual PRI to Clock Controller cable (4ft)

NTCK81AC

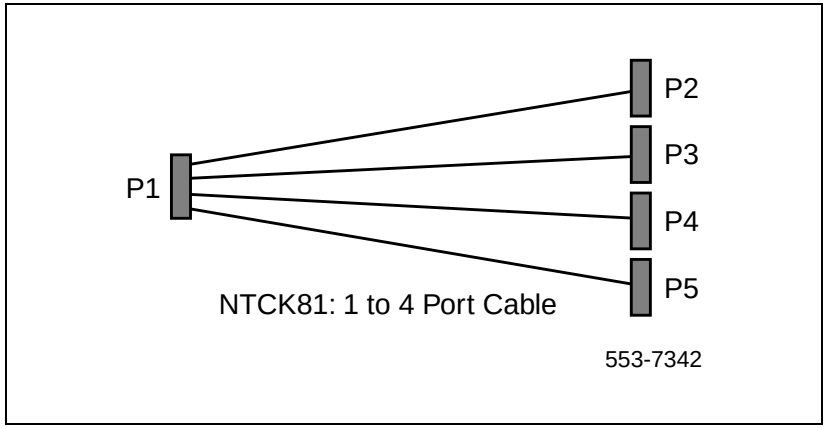
Dual PRI to Clock Controller cable (6ft)

NTCK81AD

Dual PRI to Clock Controller cable (8ft)

NTCK81AE/AF

Dual PRI to Clock Controller cable (10ft)

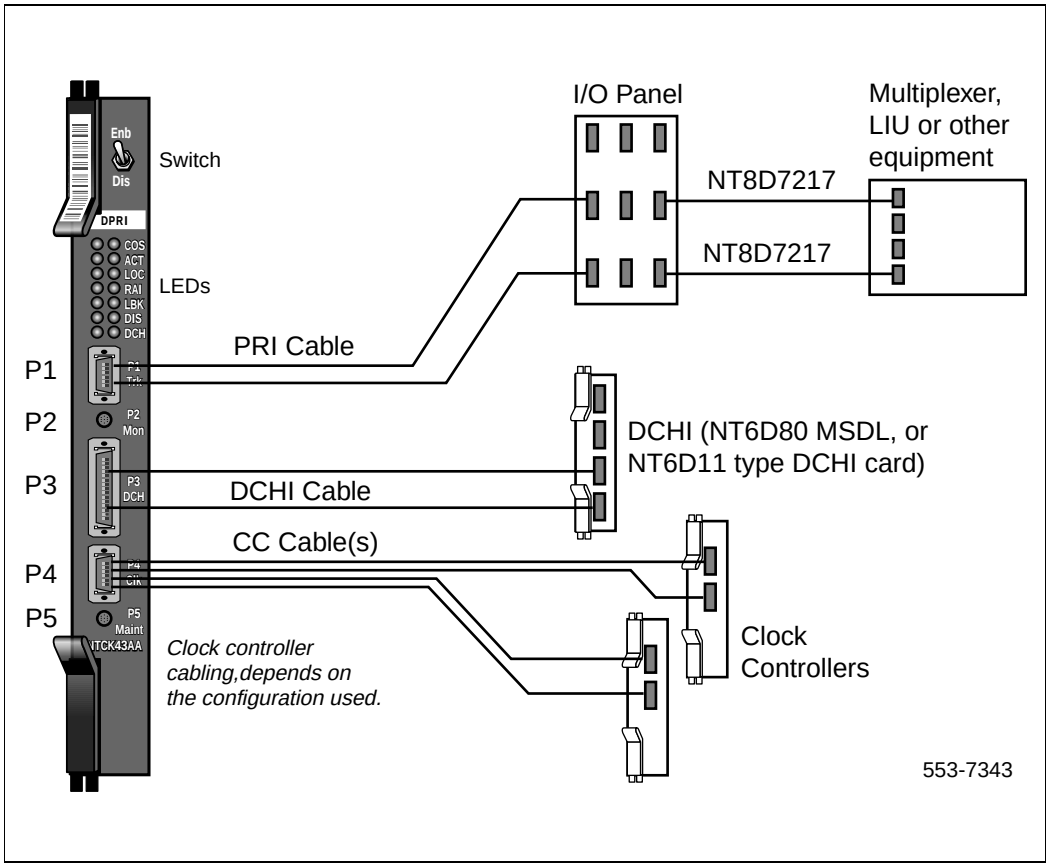


Cable NTCK81 is used only in the situation where 1 Dual PRI provides both references to both CPUs, i.e. where the Dual PRI is the sole source of clocking references for the system. If a system has other PRIs installed (DPRIs or NT8D72) other than the Dual PRI, it is recommended that one of the clocking references be taken from that other source. This will de-risk the impact of a Dual PRI card failure on the system.

NTCK43 DPRI carrier interface

The NTCK43 DPRI provide an interface to the 2Mb/s external digital line either directly or through an office repeater, line terminating unit (LTU), or Channel Service Unit (CSU). This is depicted by Figure 6 on page 36.

Figure 6
NTCK43 DPRI carrier interface



Clocking configurations pertaining to the NTCK43 DPRI

A number of different configurations arise when talking about Clock Controllers. They are:

- a Single CPU System
- a Dual CPU System

A single CPU system has one Clock Controller card. This card can receive references clocks from 2 sources referred to as the primary and secondary sources. These 2 sources can originate from a PRI, DTI etc. PRI cards such as the NT8D72 are capable of supplying 2 references of the same clock source. These are known as Ref1 (available at J1) and Ref2 (available at J2) on the NT8D72.

The Dual PRI is capable of supplying 2 references from each clock source i.e. 4 references in total. Dual PRI can thus supply Ref1 and Ref2 from its Primary and Ref1 and Ref2 from its Secondary.

Clock Controller Options

This section describes the various clocking configurations options available as well as the Clock Controller cables and Clock switch options that support these configurations.

Table 8 on page 38 provides a summary of the Clock Controller Options. Table 9 on page 39 provides a description of these Options. Figure 7 on page 40 to Figure 10 on page 43 provide illustrations.

Table 8
Clock Controller Options - summary

CC Option	S2-1	S2-2	CPU type	Cable	Notes
Option 1	OFF	OFF	Single	NTCK47	Ref 1 from U0 on P2 Ref 2 from U1 on P3
Option 2	OFF	ON	Dual	NTCK47	Ref 1 from U0 on P2 Ref 2 from U0 on P3
Option 3	ON	OFF	Dual	NTCK47	Ref 1 from U1 on P2 Ref 2 from U1 on P3
Option 4	ON	ON	Dual	NTCK81	Ref 1 from U0 on P2 Ref 2 from U0 on P3 Ref 1 from U1 on P4 Ref 2 from U1 on P5

Table 9
Clock Controller Options - description

CC Option	Description
Option 1	This option provides a single CPU system with 2 clock sources derived from the 2 units of the Dual PRI. Connector P2 provides a clock source from Unit 0. Connector P3 provides a clock source from Unit 1. Refer to Figure 7 on page 40.
Option 2	This option provides a Dual CPU system with 2 references of a clock source derived from unit 0 of the DPRI. Connector P2 provides a Ref 1 clock source from Unit 0. Connector P3 provides a Ref 2 clock source from Unit 0. Refer to Figure 8 on page 41.
Option 3	This option provides a Dual CPU system with 2 references of a clock source derived from unit 1 of the DPRI. Connector P2 provides a Ref 1 clock source from Unit 1. Connector P3 provides a Ref 2 clock source from Unit 1. Refer to Figure 9 on page 42.
Option 4	This option provides a Dual CPU system with 2 references from each clock source derived from the DPRI. Connector P2 provides a Ref 1 clock source from Unit 0. Connector P3 provides a Ref 2 clock source from Unit 0. Connector P4 provides a Ref 1 clock source from Unit 1. Connector P5 provides a Ref 2 clock source from Unit 1. Refer to Figure 10 on page 43.

Figure 7
CC Option 1

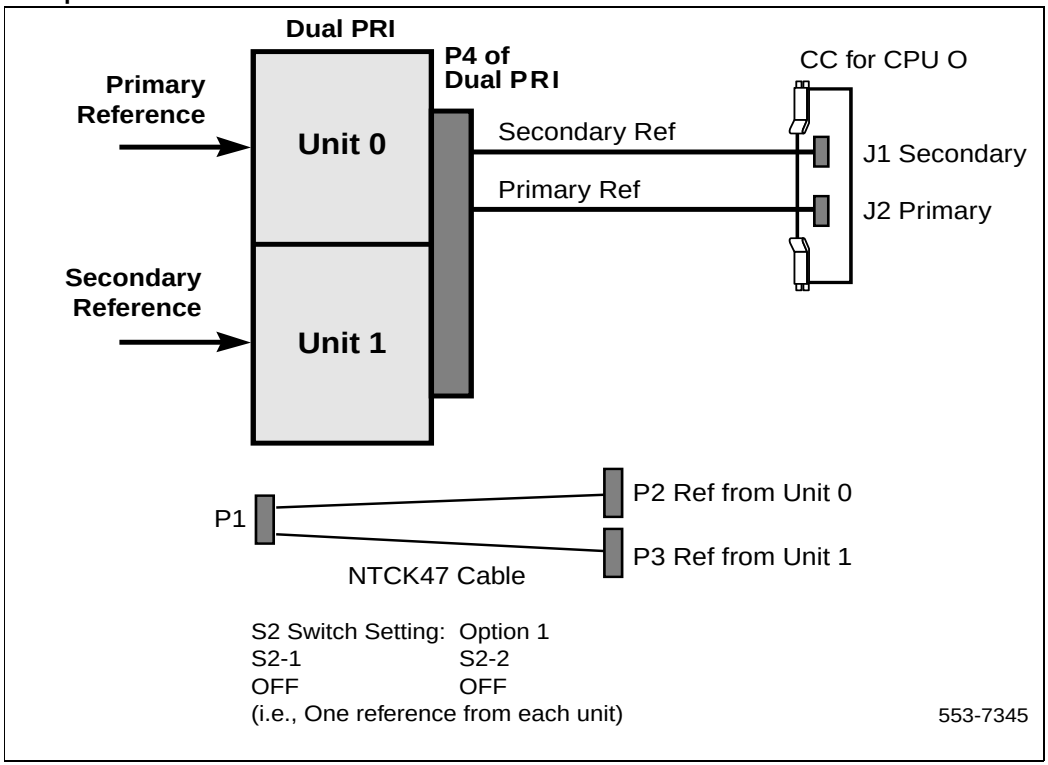


Figure 8
CC Option 2

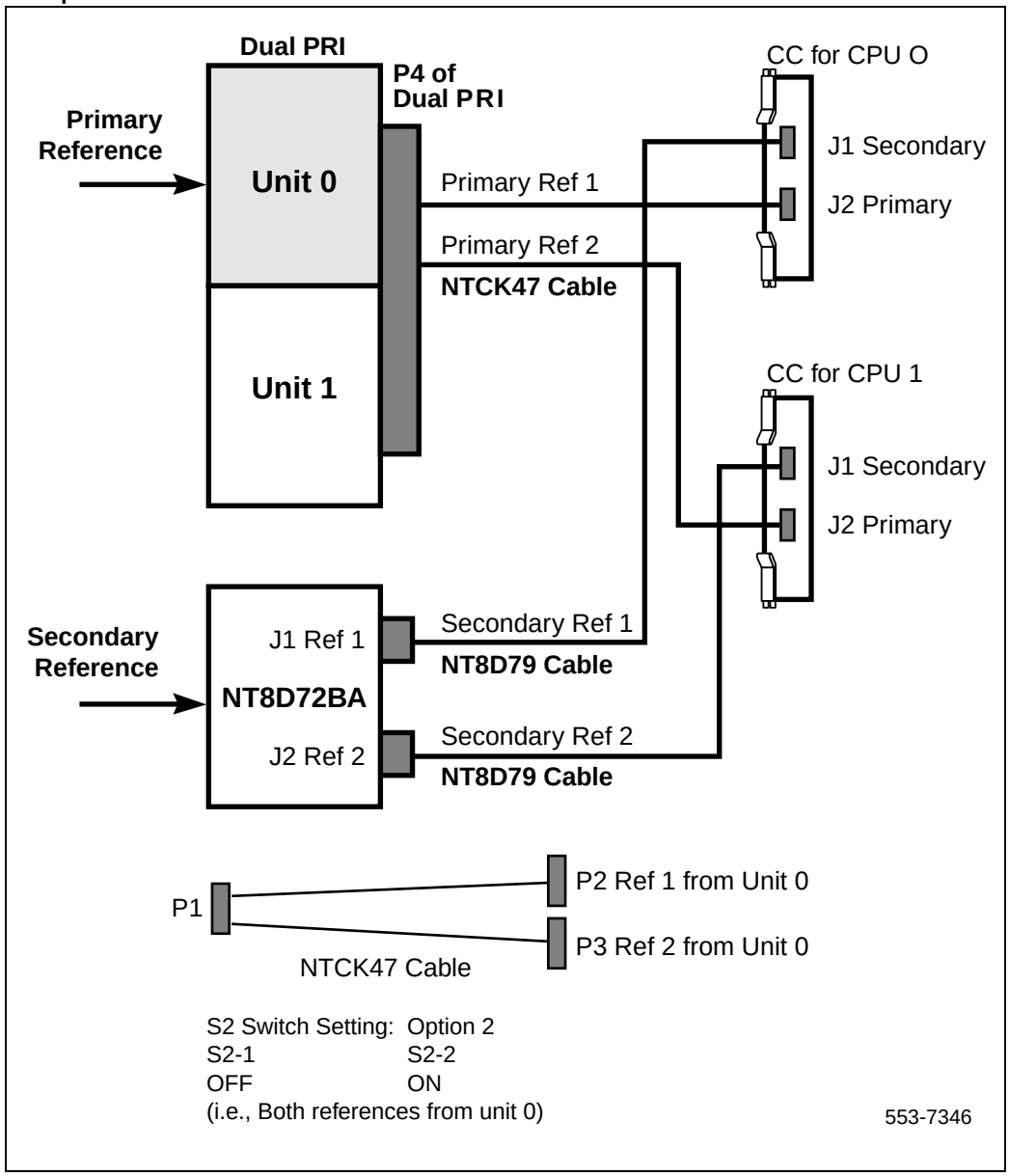


Figure 9
CC Option 3

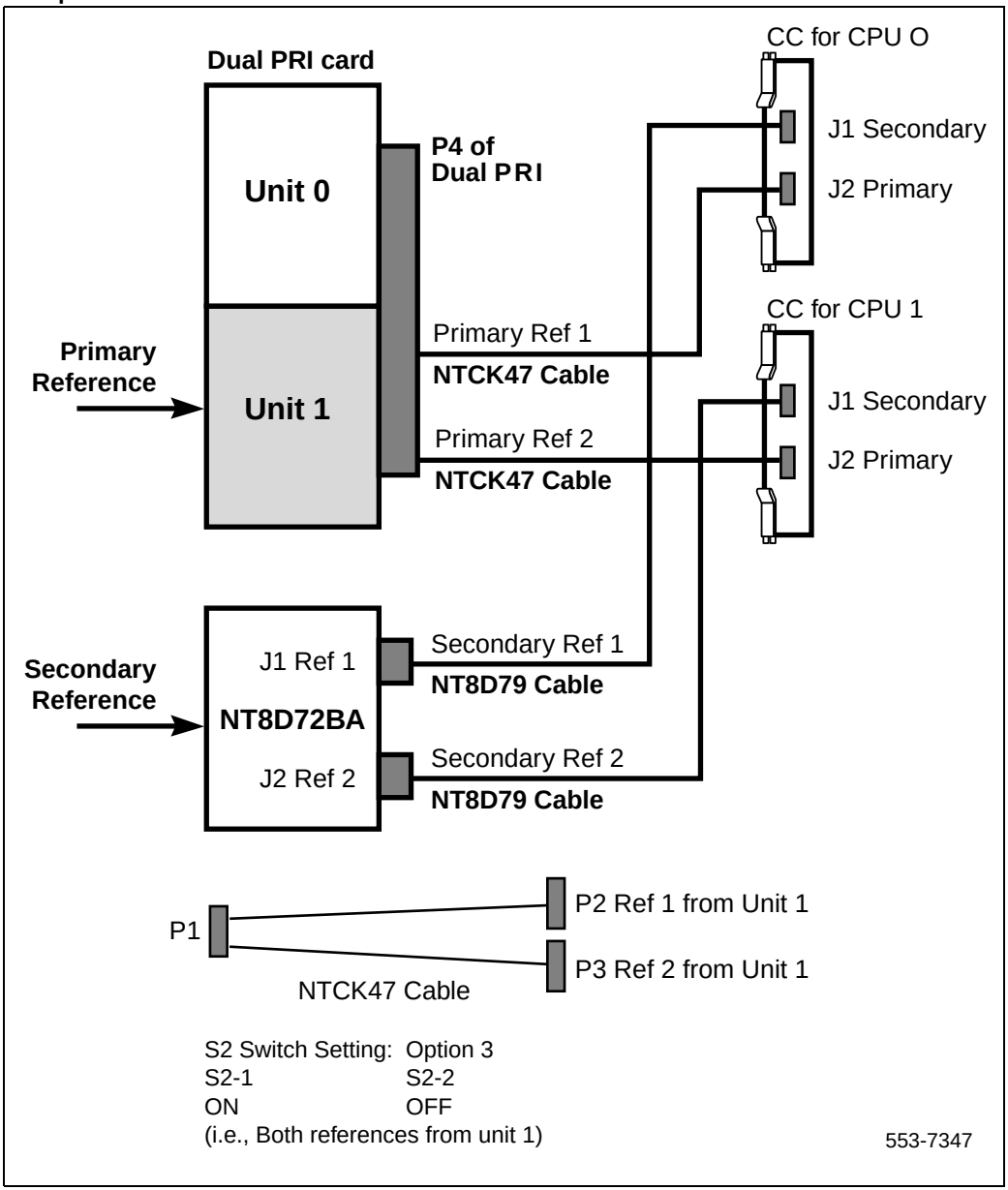
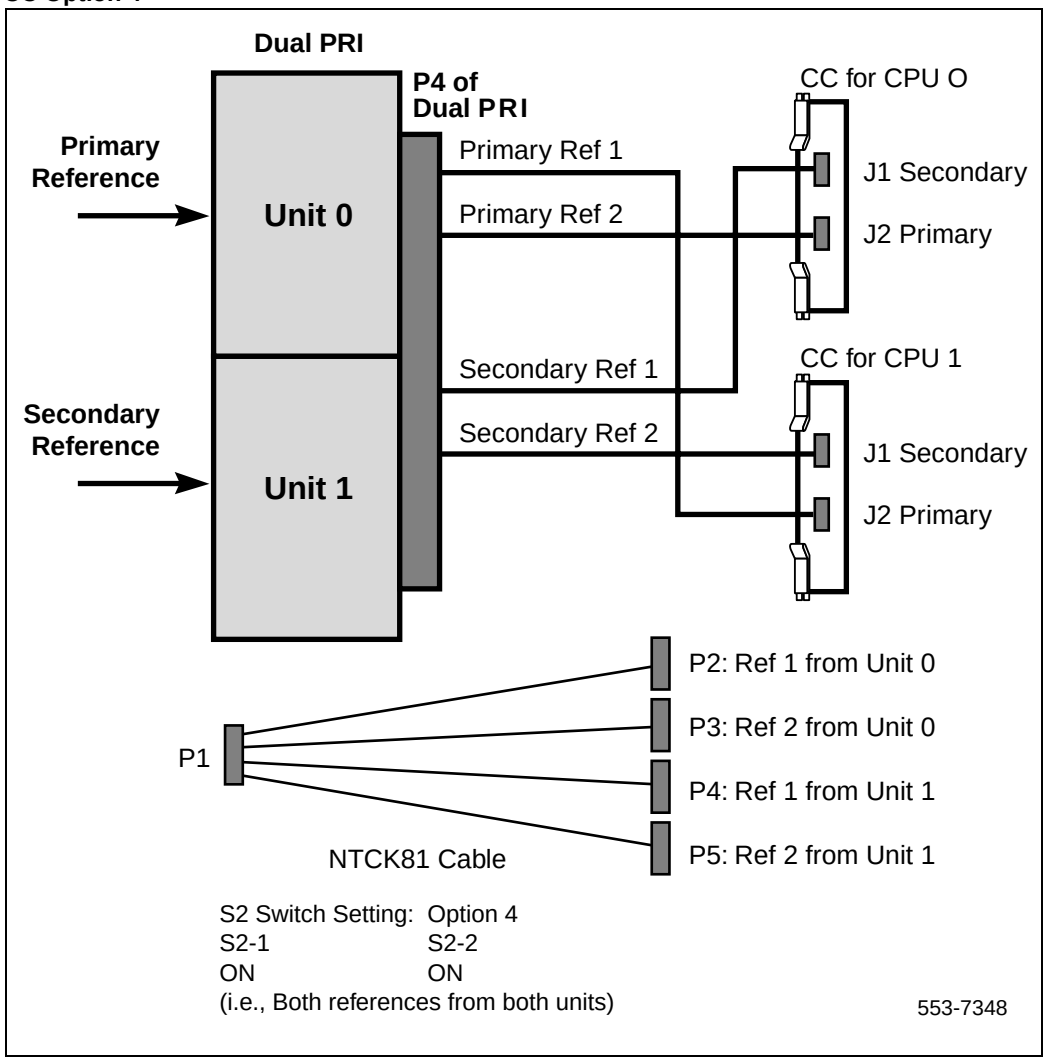


Figure 10
CC Option 4



Clock Controller

QPC775

A Clock Controller card or cards have to be fitted in Meridian 1 system Options 51C, and 61C, when DPNSS1 links are installed. On Meridian 1 system Options 51/51C and 61/61C, card slots are dedicated for the Clock Controller.

For Meridian 1 system Options 81C, and 81C CP PII, two Clock Controller cards are used for synchronization; the Clock Controllers extend timing signals to multiple groups by way of a junctor board. On Option 81C and 81C CP PII systems, a QPC775E or NTRB53AA must be used.

QPC775E clock controller cards are also required on any system supporting EuroISDN applications.

In a standalone switch or one with only analogue networking, the Clock Controller is not normally fitted.

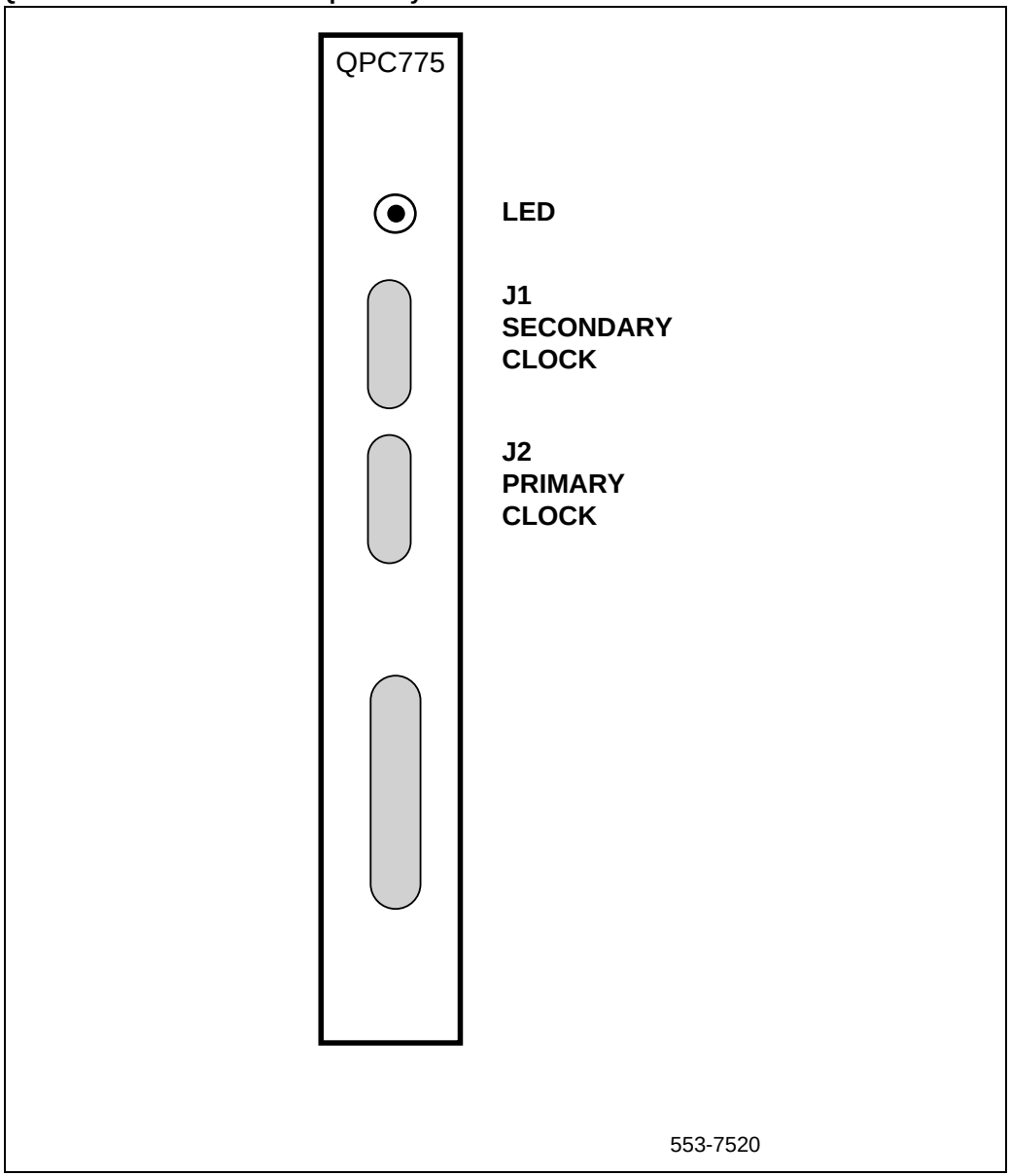
Synchronization between switches must always be provided in the case of DPNSS1 trunks, and every digital network must be individually checked for clocking configurations. If the Meridian 1 is to provide clocking over a link, then there are no additional configuration changes required on the Meridian 1 system. If the Meridian 1 is to be synchronized to a particular link, then the associated PRI card must be physically connected to the Clock Controllers of the Meridian 1.

In a dual processor system, the synchronization link must be connected to both Clock Controllers to allow for change over. The Clock Controller(s) can be connected to two synchronization links, the second being programmed to provide the system clocking if the first choice fails.

DIP switches are set on the Clock Controller card according to the system type, and in systems with 3PE board(s), DIP switches must be set accordingly on the 3PE.

Figure Figure 11 on page 45 shows the QPC775 Clock Controller faceplate layout.

Figure 11
QPC775 Clock Controller faceplate layout

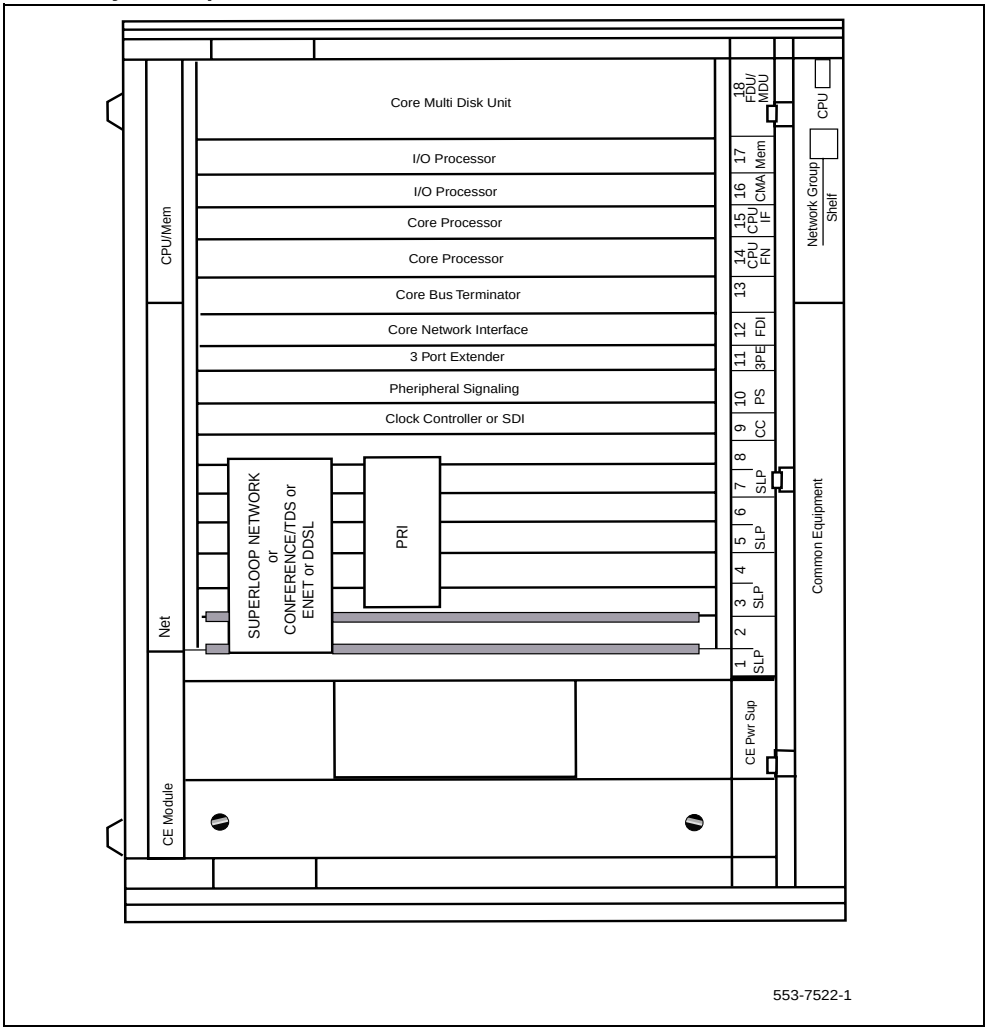


Schematics for Meridian 1 systems

Meridian 1 system Option 51C/61C

Figure Figure 12 on page 46 shows a schematic of a Core/Network module in Meridian 1 system Options 51C and 61C.

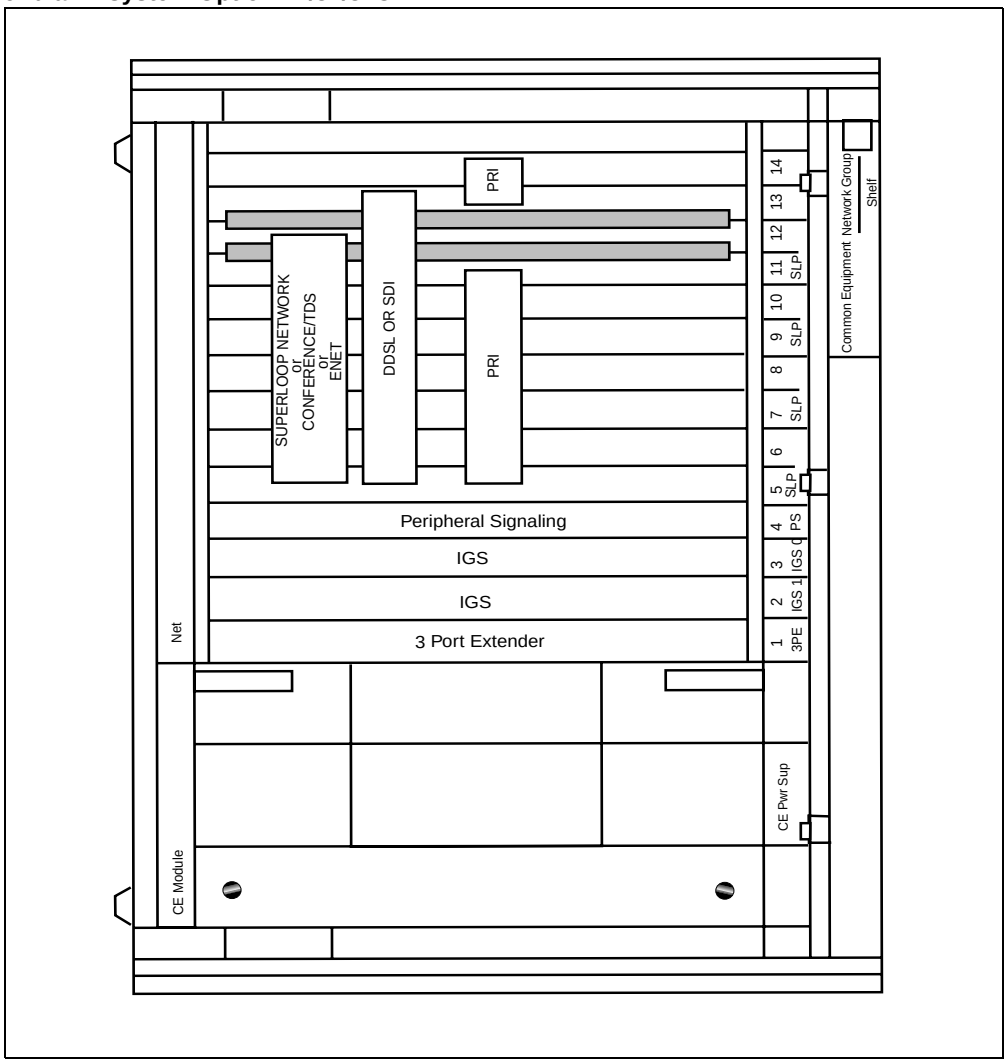
Figure 12
Meridian 1 system Options 51C/61C



Meridian 1 system Option 81C/81C CP PII

Figure Figure 13 on page 47 shows a schematic of a Network module in Meridian 1 system Options 81C, and 81C CP PII.

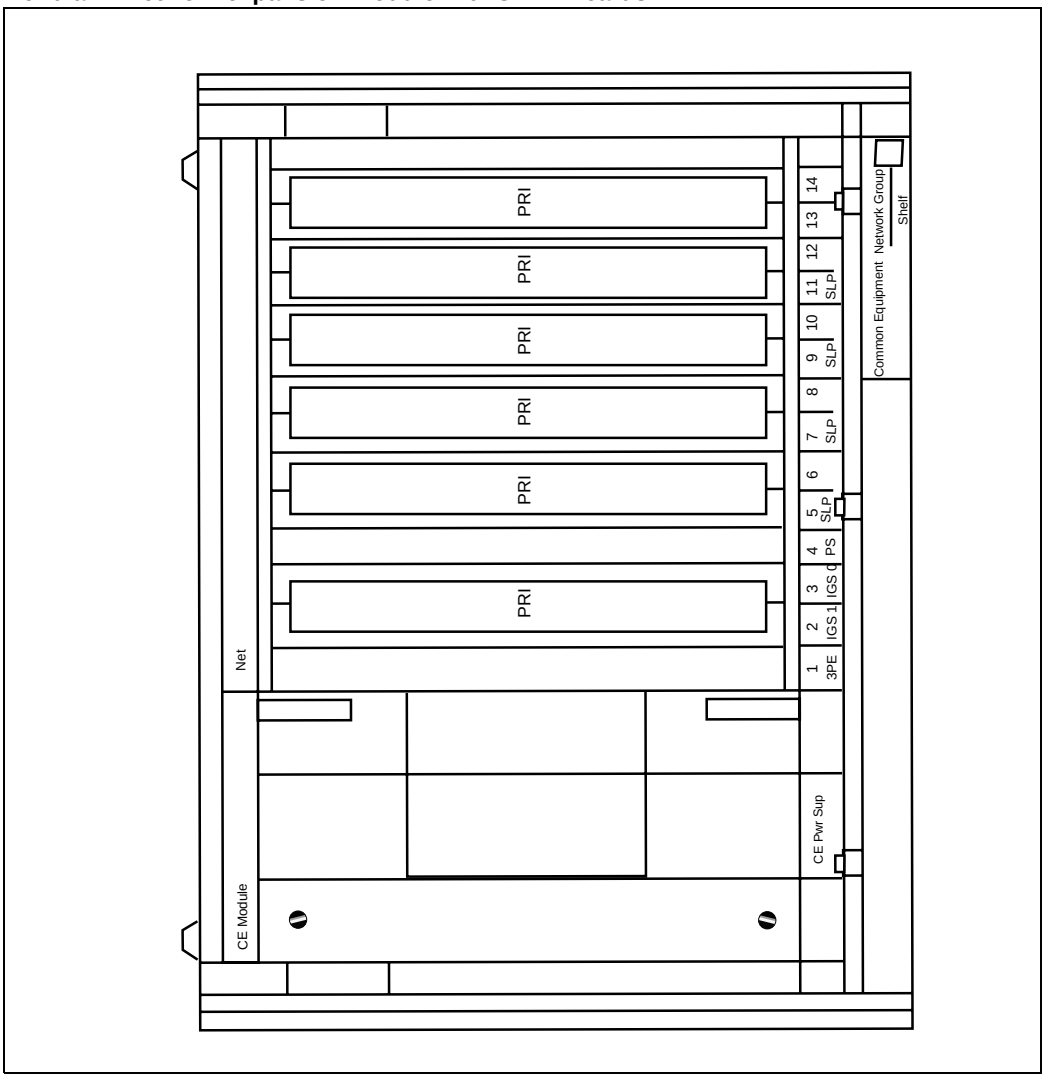
Figure 13
Meridian 1 system Option 71/81/81C



Meridian 1 network expansion shelf

Figure Figure 14 on page 48 shows a schematic of a Meridian 1 Network Expansion module with six PRI cards.

Figure 14
Meridian 1 network expansion module with six PRI cards



Cabling requirements (non NTCK43 DPRI)

Cables and cable lengths

Table 10 on page 49 describes cables and cable lengths.

Table 10
Cables and cable lengths

Cable Type	From	To	Maximum length (meters)
NT5K40AA or NT5K41AA or NT5K86AA	NT8D72 PRI	Line Terminating Equipment	NT5K40AA - 4 NT5K41AA - 8 NT5K86AA - 12
QCAD328A	NT8D72 PRI	NT5K35 or NT5K75 or NT6D11AE/AF DCHI	1.8
NT8D85AD	QPC414 ENET	NT8D72 PRI	1.8
NT8D75AC/AD (Meridian 1 system Option 61C only)	QPC775 Clock Controller	QPC775 Clock Controller	NT8D75AC - 1.2 NT8D75AC - 1.8
NT8D82AD	NT5K35 or NT5K75 or NT6D11AE/AF DCHI	I/O panel	1.8
NT8D79AD	NT8D72 PRI	QPC775 Clock Controller	1.8 m

NT5K40AA, NT5K41AA, NT5K86AA

- Construction - 75 ohm dual co-axial type with solid inner conductor and braided shield;
- PRI connection (front) - J4, 15-pin, male, subminiature D with jack-screws;
- LTE connection (rear) - twin 75 ohm BNC crimp plug, transmit and receive.

NT5K40AA, NT5K41AA wire list

Table 11 on page 50 provides the wire list for the NT5K40AA and NT5K41AA cables.

Table 11
NT5K40AA and NT5K41AA wire list

Signal	From (card end)	To (I/O end)
XTIP (transmit)	J1-1	J2 Inner Conductor
XRING (transmit)	J1-9	J2 Shield
RTIP (receive)	J1-3	J3 Inner Conductor
RRING (receive)	J1-11	J3 Shield

NT5K86AA wire list

Table 12 on page 50 provides the wire list for the NT5K86AA cable.

Table 12
NT5K86AA wire list

Signal	From (card end)	To (I/O end)
XTIP (transmit)	J1-1	J2 Inner Conductor
XRING (transmit)	J1-9	J2 Shield
RTIP (receive)	J1-3	J3 Inner Conductor
RRING (receive)	J1-11	J3 Shield
FRAME GROUND	J1-2	J2 Shield

QCAD328A

The NT5K35 or NT5K75 or NT6D11AE/AF D-channel interface connects to the NT8D72 PRI by means of the QCAD328A, which is a special RS422 cable. This cable has the following attributes:

- Construction - 24 AWG (0.511 mm), stranded
- P1 Connector (from DCHI) - 25-pin male, subminiature D
- P2 Connector (to PRI) - 15-pin male, subminiature D

QCAD328A wire list

Table 13 on page 51 provides the wire list for the QCAD328A cable.

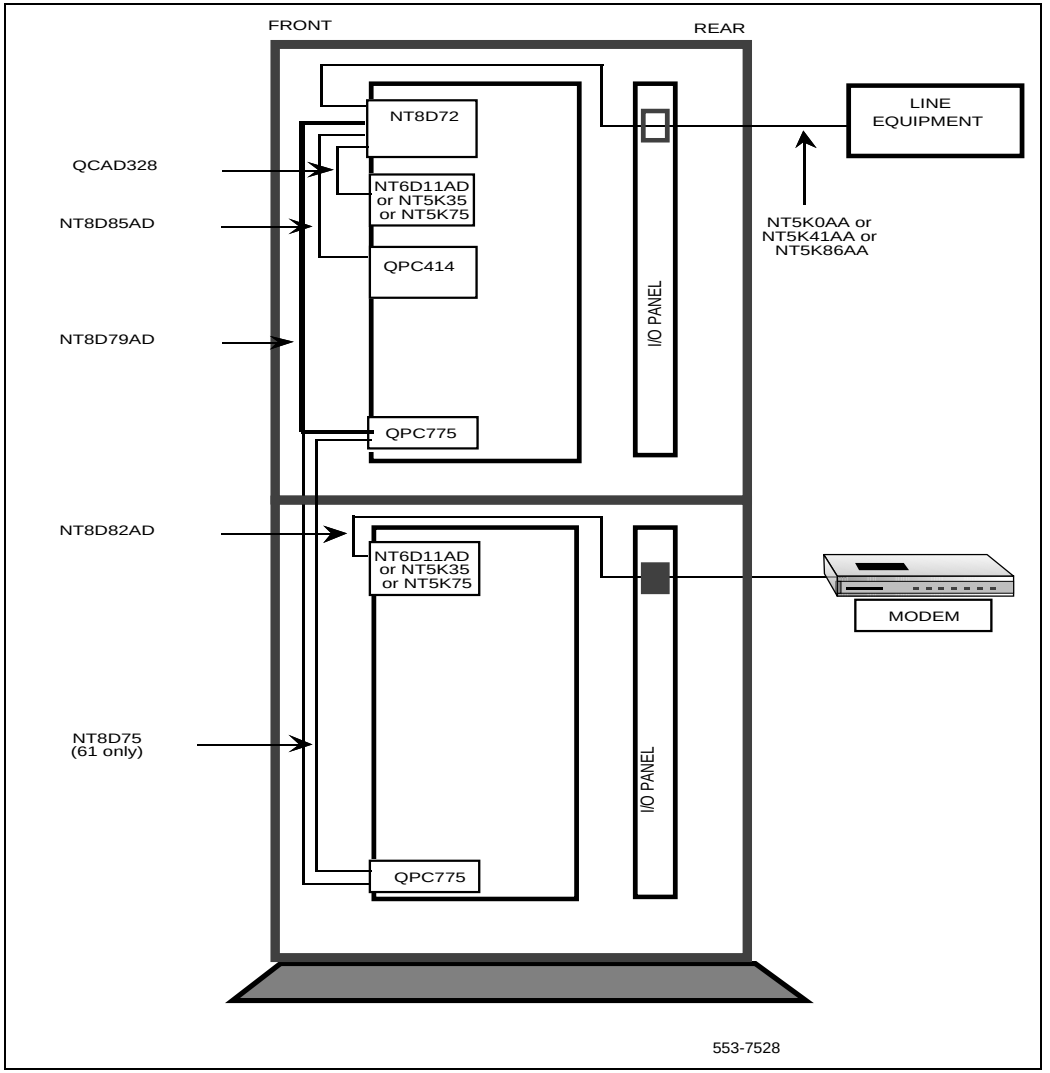
Table 13
QCAD328A wire list

From DCHI (25 Pin)	To PRI (15 Pin)
P1-2	P2-2
P1-13	P2-10
P1-20	P2-15
P1-15	P2-9
P1-14	P2-11
P1-3	P2-4
P1-16	P2-12
P1-17	P2-5
P1-12	P2-13
P1-8	P2-8
P1-1	P2-1
P1-5 TO P1-8	
P1-7 TO P1-1	

Cabling schematic

Figure 15 on page 52 provides a schematic illustration of IDA cabling.

Figure 15
Cabling schematic for a generic Meridian 1 system



DCHI installation and removal

Contents

This section contains information on the following topics:

Reference list 54
Setting up the NT5K35 55
NT5K35 DIP switch settings 55
Jumper settings 55
Port address switch settings 57
Setting up the NT5K75 59
NT5K75 DIP switch settings 59
Port addressing modes 60
Port address switch settings 62
Jumper settings 68
Setting up the NT6D11AE/AF 70
DIP switch settings 70
Port addressing modes 71
Port address switch settings 73
Protocol selection 80
Valid switch combinations 80
Jumper settings 82
Installing the DCHI 84
Removing the DCHI 85
Setting up the NTAG54AA 86

NTAG54 installation and removal 86
Note to installers 86
Installing the NTAG54 Daughterboard 86
Removing the NTAG54 Daughterboard 87

Reference list

The following are the references in this section:

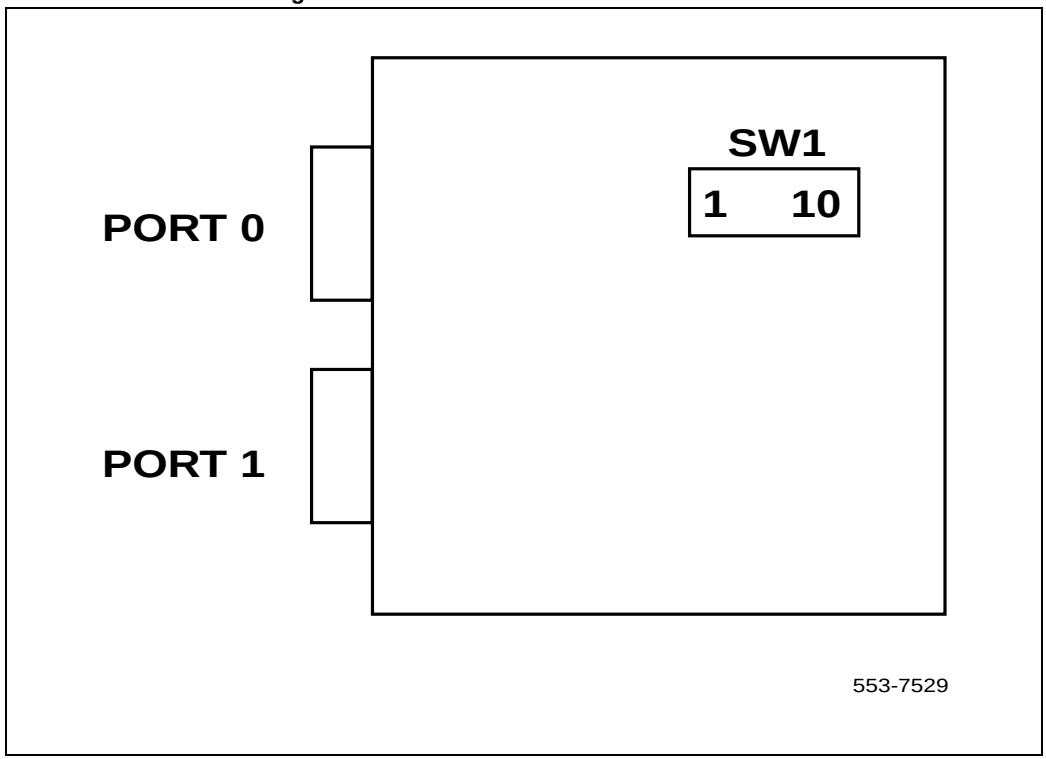
- *Networking Features and Services* (553-2901-301)
- *Spares Planning* (553-3001-153)
- *DPNSS1: Features and Services Guide* (553-3921-300)
- *DPNSS1: Maintenance Guide* (553-3921-500)

Setting up the NT5K35

NT5K35 DIP switch settings

The NT5K35 has a single bank of DIP switches, as shown in Figure 16 on page 55.

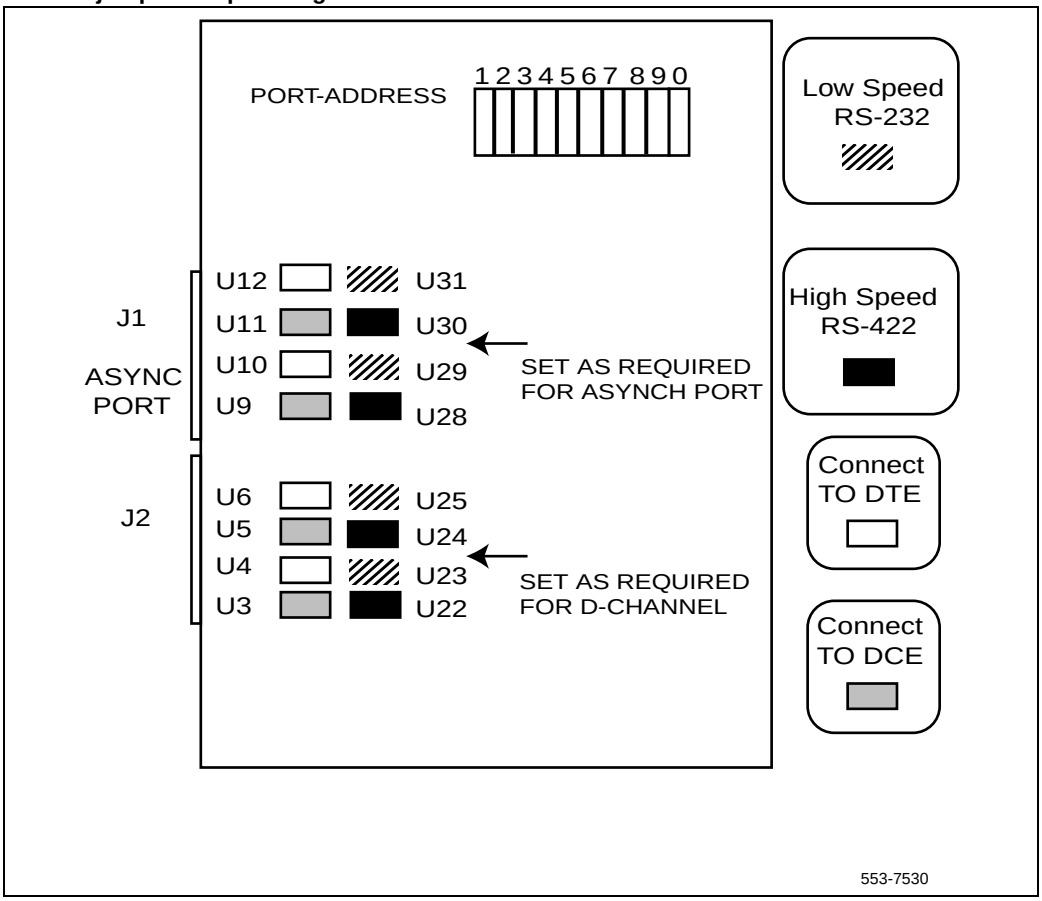
Figure 16
NT5K35 DIP switch settings



Jumper settings

The NT5K35 has two banks of option straps, one for each port. These select between DCE and DTE operation and whether the signaling interface is RS232 (APNSS or asynchronous) or RS422 (DPNSS1). Figure 17 on page 56 shows the jumper strap settings on the NT5K35 card.

Figure 17
NT5K35 jumper strap settings



DPNSS1 configuration

For DPNSS1 high speed (64Kb/s) and DCE connection, insert plugs in positions U3 + U5 + U22 + U24. Please note that J1 is not used and the positions of plugs U9 - U12 and U28 - U31 are not relevant.

APNSS configuration

For APNSS via modem low speed and DCE connection, insert plugs in positions U3 + U5 + U23 + U25. Please note that J1 is not used and the positions of plugs U9 - U12 and U28 - U31 are not relevant.

Port address switch settings

Table 14 on page 57 lists the NT5K35 port address switch settings for dual port operation.

Note: S7 and S9 have no effect for dual port operation.

Table 14
NT5K35 Port address switch settings for dual port operation

Port Number		S4	S5	S6	S8	S0
Even	**Odd**					
0	1	OFF	OFF	OFF	OFF	OFF
2	3	OFF	OFF	**ON**	OFF	OFF
4	5	OFF	**ON**	OFF	OFF	OFF
6	7	OFF	**ON**	**ON**	OFF	OFF
8	9	**ON**	OFF	OFF	OFF	OFF
10	11	**ON**	OFF	**ON**	OFF	OFF
12	13	**ON**	**ON**	OFF	OFF	OFF
14	15	**ON**	**ON**	**ON**	OFF	OFF

Table 15 on page 58 lists the NT5K35 port address switch settings for single port operation.

Note: S1, S2 and S3 are reserved for future use and should be set to OFF.

Table 15
NT5K35 Port address switch settings for single port operation (Part 1 of 2)

Port Number	S4	S5	S6	S7	S8	S9	S0
0	OFF	OFF	OFF	OFF	**ON**	OFF	OFF
1	OFF	OFF	OFF	**ON**	**ON**	OFF	OFF
2	OFF	OFF	**ON**	OFF	**ON**	OFF	OFF
3	OFF	OFF	**ON**	**ON**	**ON**	OFF	OFF
4	OFF	**ON**	OFF	OFF	**ON**	OFF	OFF
5	OFF	**ON**	OFF	**ON**	**ON**	OFF	OFF
6	OFF	**ON**	**ON**	OFF	**ON**	OFF	OFF
7	OFF	**ON**	**ON**	**ON**	**ON**	OFF	OFF
8	**ON**	0	OFF	OFF	**ON**	OFF	OFF
9	**ON**	0	OFF	**ON**	**ON**	OFF	OFF
10	**ON**	0	**ON**	OFF	**ON**	OFF	OFF

Table 15
NT5K35 Port address switch settings for single port operation (Part 2 of 2)

Port Number	S4	S5	S6	S7	S8	S9	S0
11	**ON**	0	**ON**	**ON**	**ON**	OFF	OFF
12	**ON**	**ON**	OFF	OFF	**ON**	OFF	OFF
13	**ON**	**ON**	OFF	**ON**	**ON**	OFF	OFF
14	**ON**	**ON**	**ON**	OFF	**ON**	OFF	OFF
15	**ON**	**ON**	**ON**	**ON**	**ON**	OFF	OFF

Setting up the NT5K75

Prior to installing the NT5K75, the following switch and strap options must be set:

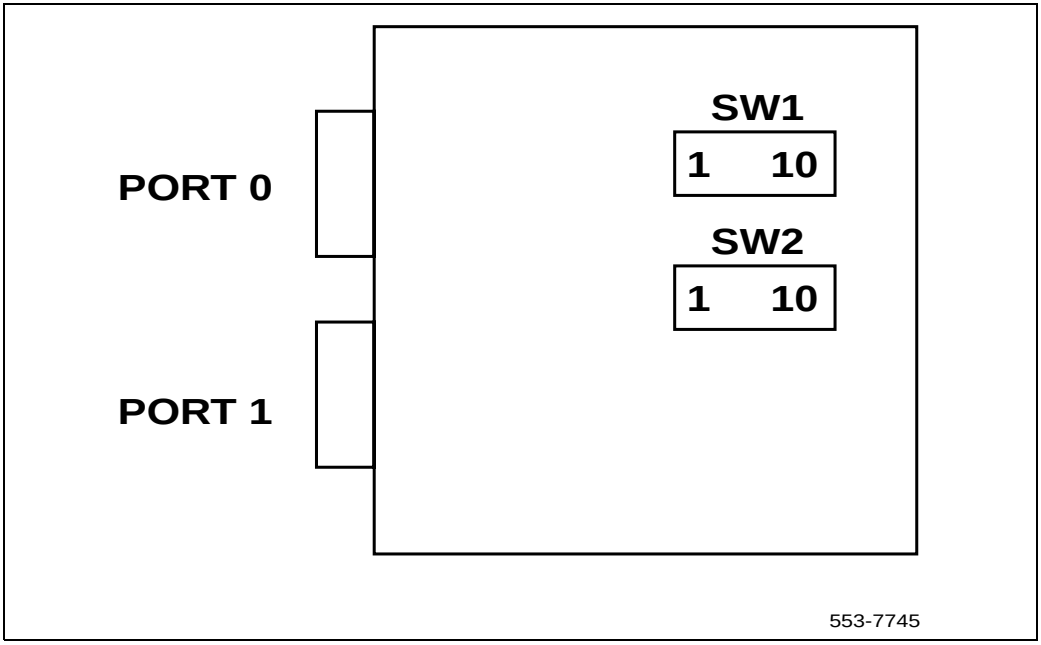
- Port addressing mode (standard, expanded, or disabled)
- Port addresses (standard mode: 0-15; expanded mode: 0-159 possible, 16-159 recommended)
- Line interface jumper options (RS232 or RS422, DTE or DCE)

NT5K75 DIP switch settings

The NT5K75 has two sets of DIP switches. Each port has its own bank of 10 DIP switches (SW1 & SW2) to select the port address (8 bits) and mode of operation (2 bits). SW1 is used for port 0 settings, SW2 is used for port 1 settings. Port 0 is used to select whether the asynchronous ESDI port is be disabled or not (must be set to “disable” for DPNSS1). Port 1 is used to select the standard or expanded D-channel addressing mode on the NT5K75.

The DIP switches are located as shown in Figure 18 on page 60.

Figure 18
NT5K75 DIP switches



Port addressing modes

Port 0 Mode Selection

Port 0 is used to select whether the asynchronous ESDI port is be disabled or not. Table 16 on page 60 describes port 0 mode selection for the NT5K75.

Note: The asynchronous ESDI port must be set to “disabled”.

Table 16
Port 0 mode selection for NT5K75 (Part 1 of 2)

Port Mode	Switch Setting	
	SW1.1	SW1.2

Table 16
Port 0 mode selection for NT5K75 (Part 2 of 2)

Not used	0	-
Asynchronous ESDI	1	0
Port disabled	1	1

Port 1 mode selection

Port 1 is used to select the standard or expanded D-channel addressing mode on the NT5K75. Table 17 on page 61 describes port 1 mode selection for the NT5K75.

Table 17
Port 1 mode selection for NT5K75

Port Mode	**Switch Setting**	
	SW2.1	**SW2.2**
Synchronous, D-channel, standard addressing (emulates the NT5K35)	0	0
Synchronous, D-channel, expanded addressing	0	1
Not used	1	0
Port disabled	1	1

Port address switch settings

Port address switch settings in the standard mode

These apply to either SW1 or SW2 when the card is in standard mode. Table 18 on page 62 describes the port address switch settings in the standard mode for the NT5K75.

Note: S3, S4, and S5 are reserved for future use and should be set to OFF.

Table 18
NT5K75 Port address switch settings in the standard mode (Part 1 of 2)

Port Address	Switch Setting							
	Group No.			Device No.				
	S3	S4	S5	S6	S7	S8	S9	S10
0	0	0	0	0	0	0	0	x
1	0	0	0	0	0	0	1	x
2	0	0	0	0	0	1	0	x
3	0	0	0	0	0	1	1	x
4	0	0	0	0	1	0	0	x
5	0	0	0	0	1	0	1	x
6	0	0	0	0	1	1	0	x

Table 18
NT5K75 Port address switch settings in the standard mode (Part 2 of 2)

Port Address	Switch Setting							
7	0	0	0	0	1	1	1	x
8	0	0	0	1	0	0	0	x
9	0	0	0	1	0	0	1	x
10	0	0	0	1	0	1	0	x
11	0	0	0	1	0	1	1	x
12	0	0	0	1	1	0	0	x
13	0	0	0	1	1	0	1	x
14	0	0	0	1	1	1	0	x
15	0	0	0	1	1	1	1	x

Port address switch settings in the expanded mode

The port address switch settings, shown in Table 19 on page 64, only apply to SW2 (that is, the D-channel port).

> ***Note:*** Half group numbers are required for expanded mode operation. Please note that the port number is partially formed from the half group number of the shelf on which the NT5K75 DCHI resides. Please refer to the information described in the Engineering note, found in the "DPNSS1 hardware requirements" section for information pertaining to port addressing.

Table 19
NT5K75 Port address switch settings in the expanded mode (Part 1 of 4)

Port Address	Switch Setting							
	Half Group No.			Device No.				
	S3	S4	S5	S6	S7	S8	S9	S10
0	0	0	0	0	0	0	0	0
1				0	0	0	0	1
2				0	0	0	1	0
3				0	0	0	1	1
4				0	0	1	0	0
5				0	0	1	0	1

Table 19
NT5K75 Port address switch settings in the expanded mode (Part 2 of 4)

Port Address	Switch Setting							
	Half Group No.			Device No.				
	S3	S4	S5	S6	S7	S8	S9	S10
6				0	0	1	1	0
7				0	0	1	1	1
8				0	1	0	0	0
9				0	1	0	0	1
10				0	1	0	1	0
11				0	1	0	1	1
12				0	1	1	0	0
13				0	1	1	0	1
14				0	1	1	1	0
15				0	1	1	1	1

Table 19
NT5K75 Port address switch settings in the expanded mode (Part 3 of 4)

Port Address	Switch Setting							
	Half Group No.			Device No.				
	S3	S4	S5	S6	S7	S8	S9	S10
16				1	0	0	0	0
17				1	0	0	0	1
18				1	0	0	1	0
19				1	0	0	1	1
20				1	0	1	0	0
21				1	0	1	0	1
22				1	0	1	1	0
23				1	0	1	1	1
24				1	1	0	0	0
25				1	1	0	0	1

Table 19
NT5K75 Port address switch settings in the expanded mode (Part 4 of 4)

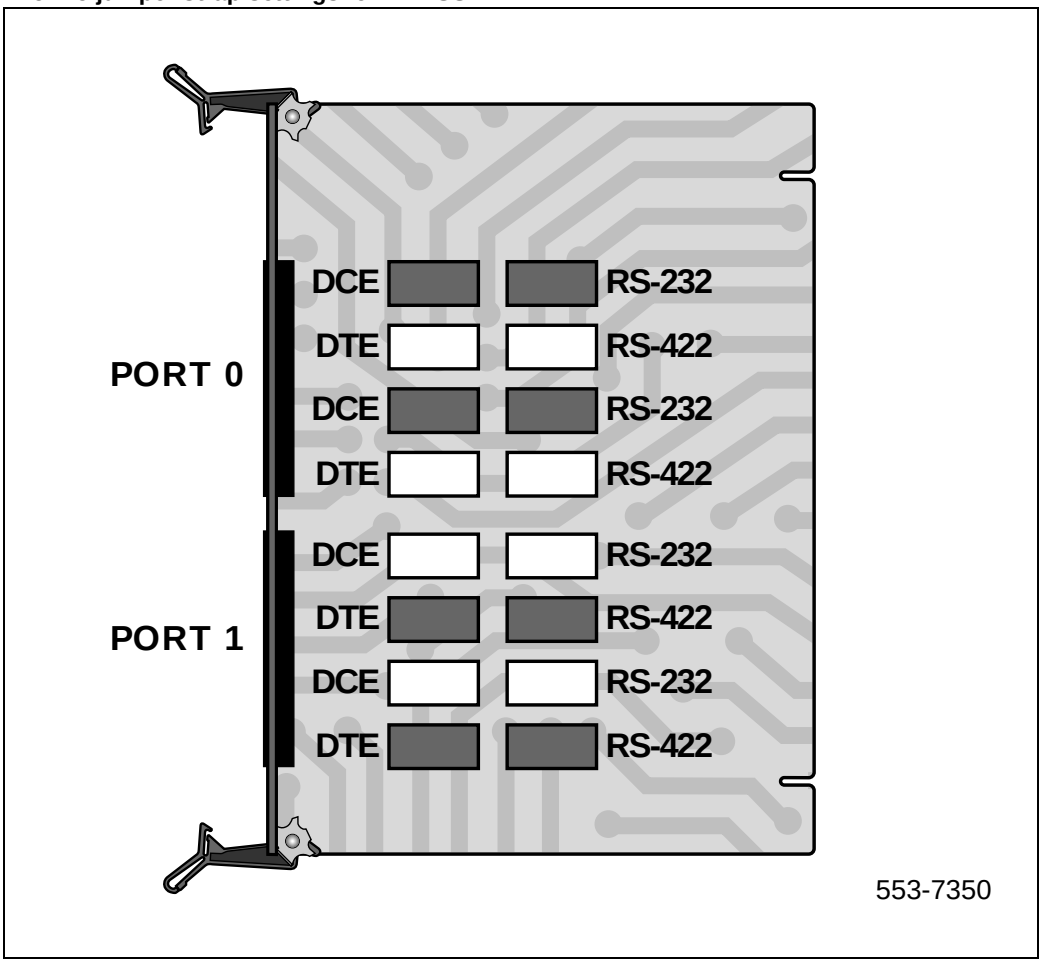
Port Address	Switch Setting							
	Half Group No.			Device No.				
	S3	S4	S5	S6	S7	S8	S9	S10
26				1	1	0	1	0
27				1	1	0	1	1
28				1	1	1	0	0
29				1	1	1	0	1
30				1	1	1	1	0
31				1	1	1	1	1
32-63	0	0	1					
64-95	0	1	0					
96-127	0	1	1					
128-159	1	0	0					

Jumper settings

DPNSS1 configuration

The NT5K75 has two banks of option straps, one for each port. These select between DCE and DTE operation and whether the signaling interface is RS232 (APNSS or asynchronous) or RS422 (DPNSS1). The DPNSS1 configuration is shown in Figure 19 on page 68.

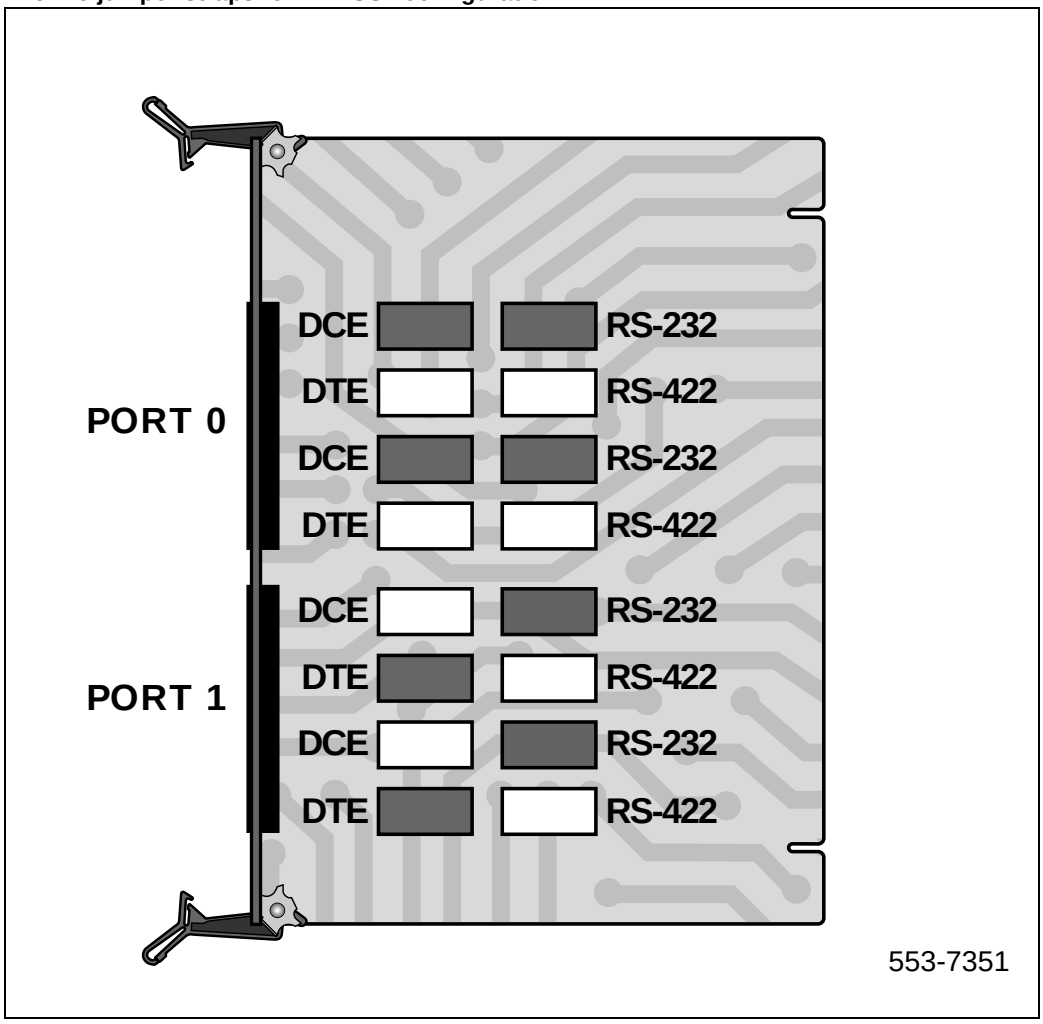
Figure 19
NT5K75 jumper strap settings for DPNSS1



APNSS configuration

For APNSS via modem low speed and DTE connection, insert Port 1 straps, as illustrated by Figure 20 on page 69.

Figure 20
NT5K75 jumper straps for APNSS1 configuration



Setting up the NT6D11AE/AF

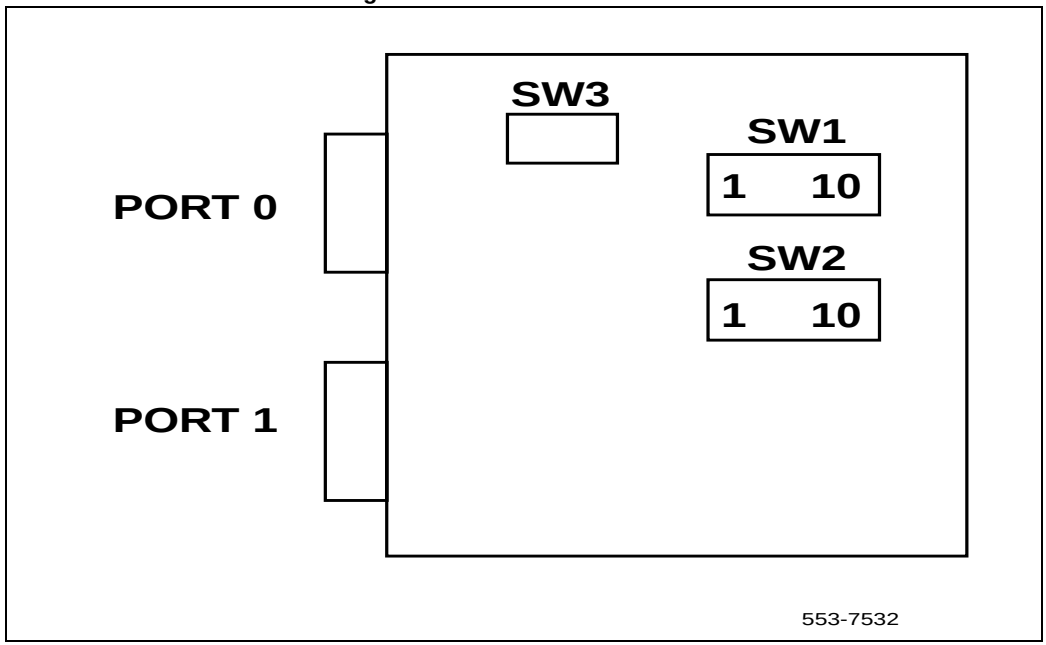
- Prior to installing the NT6D11AE/AF, the following switch and strap options must be set:
- Firmware selection (set for DPNSS1)
- Port addressing mode (standard, expanded, or disabled)
- Port addresses (standard mode: 0-15; expanded mode: 0-159 possible, 16-159 recommended)
- Line interface jumper options (RS232 or RS422, DTE or DCE)

DIP switch settings

The NT6D11AE/AF has three sets of DIP switches. Each port has its own bank of 10 DIP switches (SW1 & SW2) to select the port address (8 bits) and mode of operation (2 bits). SW1 is used for port 0 settings, SW2 is used for port 1 settings. SW3 is used to select between ISDN or DPNSS1 signaling. Port 0 is used to select whether the asynchronous ESDI port is be disabled or not (must be set to “disable” for DPNSS1). Port 1 is used to select the standard or expanded D-channel addressing mode on the NT6D11AE/AF.

The DIP switches are located as shown in Figure 21 on page 71.

Figure 21
NT6D11AE/AF DIP switch settings



Port addressing modes

Port 0 Mode selection

Port 0 is used to select whether the asynchronous ESDI port is to be disabled or not. Table 20 on page 71 describes the port 0 mode selection for the NT6D11AE/AF.

Note: The asynchronous ESDI port must be set to “disabled”.

Table 20
Port 0 mode selection for NT6D11AE/AF (Part 1 of 2)

Port Mode	Switch Setting	
	SW1.1	SW1.2

Table 20
Port 0 mode selection for NT6D11AE/AF (Part 2 of 2)

Not used	0	-
Asynchronous ESDI	1	0
Port disabled	1	1

Port 1 mode selection

Port 1 is used to select the standard or expanded D-channel addressing mode on the NT6D11AE/AF. Table 21 on page 73 describes the port 1 mode selection for the NT6D11AE/AF.

Table 21
Port 1 mode selection for NT6D11AE/AF

Port Mode	Switch Setting	
	SW2.1	**SW2.2**
Synchronous, D-channel, standard addressing	0	0
Synchronous, D-channel, expanded addressing	0	1
Not used	1	0
Port disabled	1	1

Port address switch settings

Port address switch settings in the standard mode

Table 22 on page 74 describes the ports address switch settings in the standard mode.These apply to either SW1 or SW2 when the NT6D11AE/AF is in standard mode.

Note: S3, S4, and S5 are reserved for future use and should be set to OFF.

Table 22
NT6D11AE/AF Port address switch settings in the standard mode (Part 1 of 2)

Port Address	Switch Setting							
	Group No.			Device No.				
	S3	S4	S5	S6	S7	S8	S9	S10
0	0	0	0	0	0	0	0	x
1	0	0	0	0	0	0	1	x
2	0	0	0	0	0	1	0	x
3	0	0	0	0	0	1	1	x
4	0	0	0	0	1	0	0	x
5	0	0	0	0	1	0	1	x
6	0	0	0	0	1	1	0	x
7	0	0	0	0	1	1	1	x
8	0	0	0	1	0	0	0	x
9	0	0	0	1	0	0	1	x

Table 22
NT6D11AE/AF Port address switch settings in the standard mode (Part 2 of 2)

Port Address	Switch Setting							
	Group No.			Device No.				
	S3	S4	S5	S6	S7	S8	S9	S10
10	0	0	0	1	0	1	0	x
11	0	0	0	1	0	1	1	x
12	0	0	0	1	1	0	0	x
13	0	0	0	1	1	0	1	x
14	0	0	0	1	1	1	0	x
15	0	0	0	1	1	1	1	x

Port address switch settings in the expanded mode

These settings only apply to SW2 (that is, the D-channel port). The port address switch settings in the expanded mode are shown in Table 23 on page 76.

Note: Half group numbers are required for expanded mode operation. Please note also that the port number is partially formed from the half group number of the shelf on which the NT6D11AE/AF resides. Please refer to the information described in the Engineering note, found in the "DPNSS1 hardware requirements" section for information pertaining to port addressing.

Table 23
NT6D11AE/AF Port address switch settings in the expanded mode (Part 1 of 4)

Port Address	Switch Setting							
	Half Group No.			Device No.				
	S3	S4	S5	S6	S7	S8	S9	S10
0	0	0	0	0	0	0	0	0
1				0	0	0	0	1
2				0	0	0	1	0
3				0	0	0	1	1
4				0	0	1	0	0
5				0	0	1	0	1
6				0	0	1	1	0
7				0	0	1	1	1
8				0	1	0	0	0
9				0	1	0	0	1

Table 23
NT6D11AE/AF Port address switch settings in the expanded mode (Part 2 of 4)

Port Address	Switch Setting							
	Half Group No.			Device No.				
	S3	S4	S5	S6	S7	S8	S9	S10
10				0	1	0	1	0
11				0	1	0	1	1
12				0	1	1	0	0
13				0	1	1	0	1
14				0	1	1	1	0
15				0	1	1	1	1
16				1	0	0	0	0
17				1	0	0	0	1
18				1	0	0	1	0
19				1	0	0	1	1

Table 23
NT6D11AE/AF Port address switch settings in the expanded mode (Part 3 of 4)

Port Address	Switch Setting							
	Half Group No.			Device No.				
	S3	S4	S5	S6	S7	S8	S9	S10
20				1	0	1	0	0
21				1	0	1	0	1
22				1	0	1	1	0
23				1	0	1	1	1
24				1	1	0	0	0
25				1	1	0	0	1
26				1	1	0	1	0
27				1	1	0	1	1
28				1	1	1	0	0
29				1	1	1	0	1

Table 23
NT6D11AE/AF Port address switch settings in the expanded mode (Part 4 of 4)

Port Address	Switch Setting							
	Half Group No.			Device No.				
	S3	S4	S5	S6	S7	S8	S9	S10
30				1	1	1	1	0
31				1	1	1	1	1
32-63	0	0	1					
64-95	0	1	0					
96-127	0	1	1					
128-159	1	0	0					

Protocol selection

SW3 is used to select the D-channel protocol, as shown in Table 24 on page 80.

Table 24
Protocol selection switch settings

Protocol	Switch Setting	
	SW3.1	**SW3.2**
DPNSS1 (NT5K35/NT5K75 emulation)	0	0
ISDN (NT6D11AB/AC emulation)	1	1

Valid switch combinations

Table 25 on page 80 and Table 26 on page 81 show the only allowable switch setting combinations for the NT6D11AE/AF (not including address switch settings).

Port 0

Port 0 can be configured as asynchronous ESDI, or disabled. If the port is configured as disabled, it will not be visible to the system CPU.

Table 25
NT6D11AE/AF Port 0 settings (Part 1 of 2)

Mode	Switch setting			
	SW1.1	**SW1.2**	**SW3.1**	**SW3.2**
Asynchronous ESDI	1	0	0	0

Table 25
NT6D11AE/AF Port 0 settings (Part 2 of 2)

Asynchronous ESDI	1	0	1	1
Port disabled	1	1	-	-

Port 1

Table 26 on page 81 shows the only valid emulation modes combinations. If the port is configured as disabled, it will not be visible to the system CPU.

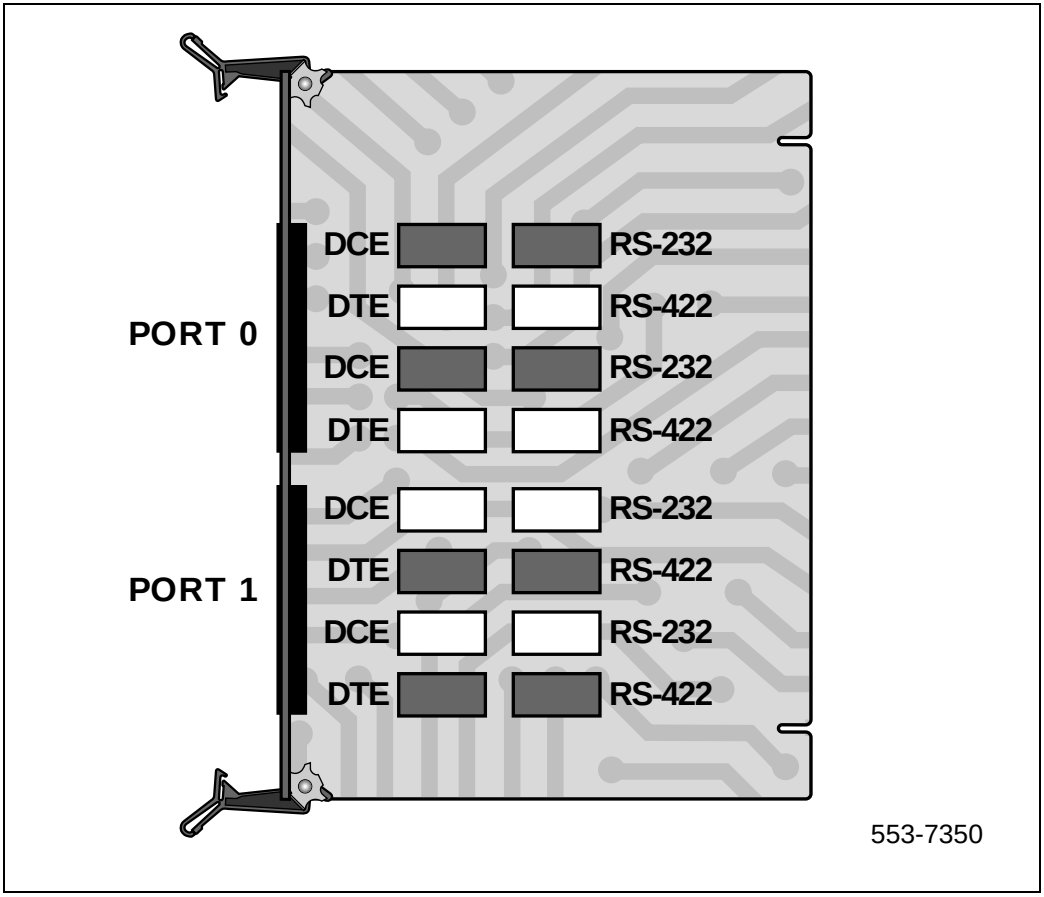
Table 26
NT6D11AE/AF Port 1 settings

Mode	Emulates	Switch setting			
		SW 2.1	SW 2.2	SW 3.1	SW3.2
DPNSS1	NT5K35AA	0	0	0	0
ISDN	NT6D11AB/AC	0	0	1	1
Expanded DPNSS1	NT5K75AA	0	1	0	0
Port disabled		1	1	-	-

Jumper settings

The NT6D11AE/AF has two banks of option straps, one for each port. These select between DCE and DTE operation and whether the signaling interface is RS232 (APNSS or asynchronous) or RS422 (DPNSS1). The DPNSS1 configuration is shown in Figure 22 on page 82.

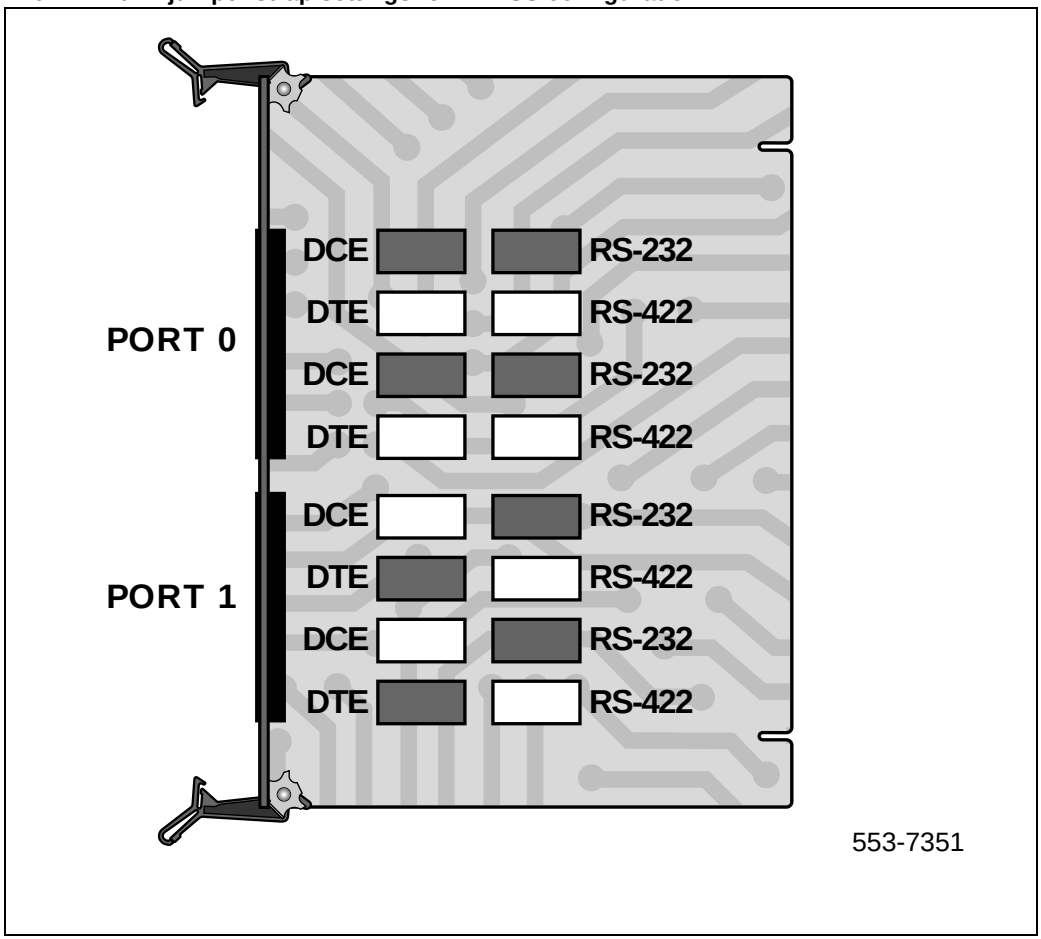
Figure 22
NT6D11AE/AF jumper strap settings for DPNSS1 configuration



APNSS configuration

For APNSS via modem low speed and DTE connection, insert Port 1 straps, as illustrated by Figure 23 on page 83.

Figure 23
NT6D11AE/AF jumper strap settings for APNSS configuration



Installing the DCHI

The procedures outlined in Table 27 on page 85 apply when installing the NT5K35, NT5K75 or NT6D11AE/AF DCHI cards on Meridian system Options 51C, 61C, and 81C/81C CP PII.

Note to installers

Either the DCHI card or the PRI card may be installed first. However, PRI loops must be configured in software before defining DCHI links.

> ***Note:*** The NT5K75 or NT6D11AE/AF in expanded mode, the port number is partially formed from the half group number of the shelf on which the card resides.

Before beginning an installation, do the following:

- Consult the *Spares Planning* (553-3001-153) document and follow the instructions
- Bring spares of all cables and boards
- Remember that the link test procedures require a successful 24-hour bit error-rate test before the link can be used for live system traffic

Removing the DCHI

Table 27 on page 85 outlines the steps involved in removing a DCHI card.

CAUTION
Service Interruption
The NT5K35, NT5K75, or NT6D11AE/AF DCHI must be software disabled before it is hardware disabled, or initialization will occur.

Table 27
Steps for removing DCHI

Step	Action
1	Disable the DCHI using LD 75, command DIS DDSL N.
2	If the circuit card is being completely removed, not replaced, remove data from memory. See the *DPNSS1: Features and Services Guide* (553-3921-300).
3	Determine the cabinet and shelf location of the DCHI card to be removed.
4	Set faceplate toggle switch to DISABLE.
5	Disconnect the DCHI cables.
6	Remove the DCHI card.
7	Pack and store the card.

Setting up the NTAG54AA

The NTAG54AA is a dual (two port) daughterboard version of the NT6D11AF to support DPNSS1/DASS2 applications with the Dual PRI card (NTCK43AB vintage or higher). It is dual density, i.e. it replaces two NT6D11 D Channel handlers, and supports two addressing modes:

- NT or standard mode: 128 I/O ports though only 16 unique addresses are supported by the current software;
- GPT or extended addressing mode: 160 ports available though there is a limit of 40 addresses.

The selection of the addressing modes is done on a port basis through two sets of dip switches which reside on the NTCK43AB Motherboard (refer to the "S3 AND S7: On-board NTAG54 address switch settings" on page 112, of the chapter "PRI installation and removal (NTCK43 DPRI)," for details).

NTAG54 installation and removal

Note to installers

Before beginning an installation, do the following:

- Consult the *Spares Planning* (553-3001-153) document and follow the instructions.
- Bring spares of all cables and boards.
- Remember that test procedures require a 24-hour minimum bit error-rate testing before being used. See the *Networking Features and Services* (553-2901-301) document for these test procedures.
- Either the NTAG54 or the DPRI card may be installed first. However, DPRI loops must be configured in software before defining DCH links.

Installing the NTAG54 Daughterboard

Installation instructions for the NTAG54 card are the same for Meridian 1 system Options 51C, 61C, 81C/81C CP PII.

Set the address for the NTAG54 (see the Switch settings section to set the address). If a NTAG54 is present on a Dual PRI card then an external D Channel should not be connected to P3. If a NTAG54 is present the LED "DCH" will light up.

Installing the NTAG54 card

CAUTION WITH ESDS DEVICES
The static discharge bracelet located inside the cabinet must be worn before handling circuit cards. Failure to wear the bracelet can result in damage to the circuit cards.

1 Unpack and inspect the NTAG54 Daughterboard.

2 Mount the NTAG54. The NTAG54 can be mounted on any Dual PRI of vintage NTCK43AB or higher. Slots that are occupied by BTUs prevent the insertion of Daughterboards.

The NTAG54 comes with 4 stand-offs so that it can be mounted onto the Dual PRI. These are easily pushed into 4 corresponding mounting holes on the Dual PRI.

The NTAG54 is mounted so that it mates correctly with P9 and P11 on the Dual PRI motherboard.

Removing the NTAG54 Daughterboard

Removal instructions for the NTAG54 are the same for Meridian 1 system Options 51C, /61C, 81C/81C CP PII.

The NTAG54 can only be removed when it is disabled in S/W.

The associated PRI link must also be disabled.

1 Disable the faceplate switch on the Dual PRI. If S1 is not disabled the Meridian 1 system will initialise.

2 Remove the Dual PRI and DDCH.

Nortel Networks PRI installation and removal

Contents

This section contains information on the following topics:

Reference list 89
Non DPRI 90
Setting up the NT8D72 90
PRI circuit card locations 92
Installing the NT8D72 PRI on Meridian 1 systems 93
Removing the NT8D72 PRI on Meridian 1 systems 95
Installing a Meridian 1 network expansion shelf 96
Installing a Common Equipment (CE) expansion shelf 97
NTCK43 DPRI 109
Setting up the NTCK43 109
Installing the NTCK43 DPRI 118
Removing the NTCK43 DPRI 119

Reference list

The following are the references in this section:

- *Networking Features and Services* (553-2901-301)
- *ISDN PRI: Maintenance* (553-2901-501)
- *DPNSS1: Maintenance Guide* (553-3921-500)

Non DPRI

Setting up the NT8D72

NT8D72 DIP switch settings

DPNSS1 links require that the DIP switch setting on the NT8D72 be at the 75 or 120 ohm position. Figure 24 on page 90 illustrates the NT8D72 DIP switch settings. Table 28 on page 91 describes NT8D72 connections.

Figure 24
NT8D72 DIP switch settings

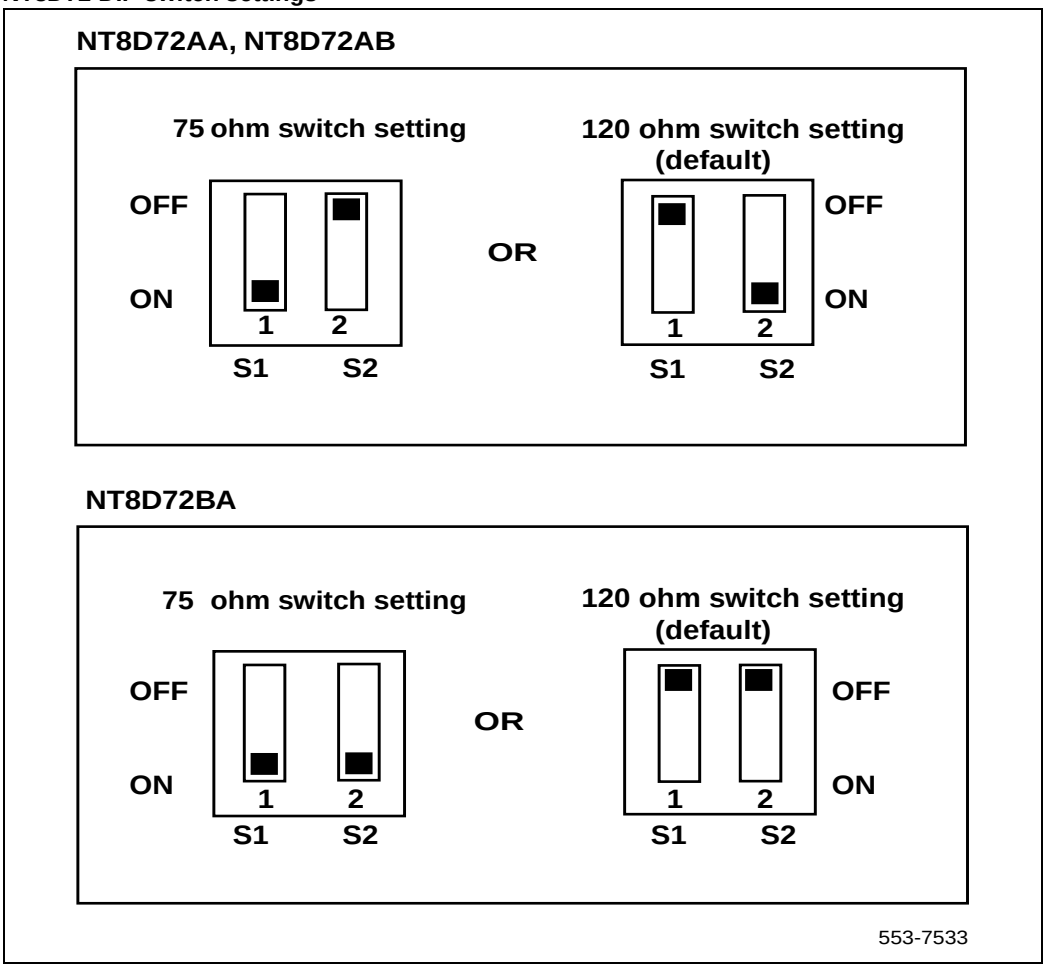


Table 28
NT8D72 PRI connections

Connector	Description
J1 and J2	Connection to the Clock Controller(s), allowing the Meridian 1 to utilize clock from the connected system, as programmed in the software.
J3	Connection to the QPC414 network card.
J4	Front panel connection to Line Terminating Equipment. The following pin assignments are selected via the DIP switch on the NT8D72.
J4-1	XMIT-TIP - transmit to network
J4-9	XMIT-RING - transmit to network
J4-2	Shield return
J4-3	RCVR-TIP - receive from network
J4-11	RCVR-RING
J4-4	Shield return
J5	Connection to the NT5K35, NT5K75, or NT6D11AE/AF DCHI, via QCAD328 cable.
RCV MON	Miniature bantam connection, used for testing.
XMT MON	Miniature bantam connection, used for testing.

PRI circuit card locations

Each NT8D72 PRI circuit card requires two adjacent slots on a shelf. The positioning of the PRI card is machine-specific, and must adhere to the following guidelines.

Meridian 1 system Options 51C and 61C

As many as five NT8D72 PRI circuit cards can be plugged into any empty network shelf, along with the power converter card.

The slots shown in Table 29 on page 92 can be used if they are not required for other cards.

Table 29
Shelf and slot location of the NT8D72 PRI card in Options 51C and 61C

System	Shelf	Slot
51 and 61	NT6D39 CPU/Network Module	1—7

Meridian 1 system Options 81C/81C CP PII

As many as five NT8D72 PRI circuit cards can be plugged into an empty network shelf, along with the Power converter card, depending on the shelf type.

The slots shown in Table 30 on page 92 can be used if they are not required for other cards.

Table 30
Shelf and slot location of NT8D72 PRI in Options 81C/81C CP PII

System	Shelf	Slot
81	NT6D39 CPU/Network Module	2, 5—14

Table 30
Shelf and slot location of NT8D72 PRI in Options 81C/81C CP PII

NT8D34 CPU Module	15 or 16 (8—12 if no SBE)

Installing the NT8D72 PRI on Meridian 1 systems

The steps outlined in Table 31 on page 93 should be followed when installing the NT8D72 PRI on Meridian 1 system Options 51C, 61C, and 81C/81C CP PII.

Note: On Meridian 1 system Options 51C, 61C, and 81C/81C CP PII, do not fit the PRI card in the Bus Terminating Unit (BTU) position. Due to physical width restraints, BTUs and PRIs cannot fit next to each other on a shelf.

CAUTION
Loss of Data
The NT8D79AA cable connecting the Clock Controller and a PRI card must **not** be routed through the center of the cabinet past the power harness. Instead, it must be routed around the outside of the equipment shelves.

Table 31
Steps for installing the NT8D72 PRI card

Step	Action
1	Determine the cabinet and shelf location of the circuit card to be installed; refer to “PRI circuit card locations” which immediately precedes this section.
2	Unpack and inspect circuit cards.
3	Set the option switch on the PRI circuit card to the 75/120 ohm position.

Table 31
Steps for installing the NT8D72 PRI card

4	Install PRI circuit card in the assigned shelf and slot.
5	Install Network circuit card (if no Network loop connection is available).
6	If required, install I/O adapters in I/O panel.
7	Run and connect the PRI cables.
8	If required, install connecting blocks at MDF or wall mounted cross-connect terminal.
9	If required, designate connecting blocks at MDF or wall mounted cross-connect terminal.
10	If required, install Network Channel Terminating Equipment (NCTE).
11	Cross-connect PRI circuits.
12	Add related office data into switch memory.
13	Run IDA status check. Refer to the *DPNSS1: Maintenance Guide* (553-3921-500) for the IDA verification tests, IDA status check, and IDA startup test.

Removing the NT8D72 PRI on Meridian 1 systems

The procedures outlined in Table 32 on page 95 should be followed when removing the NT8D72 PRI on Meridian 1 systems 51C, 61C, and 81C/81C CP PII.

Table 32
Steps for removing the NT8D72 PRI card

Step	Action
1	Disable Network Loop using LD 75. The command is DIS DDCS “loop number.”
2	If the circuit card is being completely removed, not replaced, remove data from memory.
3	Determine the cabinet and shelf location of the circuit cards to be removed.
4	Remove cross connections at MDF to wall-mounted cross-connect terminal.
5	Tag and disconnect cables from card. Rearrange Clock Controller card cables if required.
6	Remove PRI and Network circuit cards. ***Note:*** If the other circuit of a dual Network card is in use, do NOT remove the Network card.
7	Pack and store circuit card.

Installing a Meridian 1 network expansion shelf

Follow the procedures outlined in Table 33 on page 96 when additional network shelf space is required for PRI cards on Meridian 1 switches. Please refer to the *IDA Equipment Overview* section, for a schematic representation of a Meridian 1 network expansion shelf.

CAUTION
Loss of Data
Do not place the circuit cards in the shelf until Step 7 is completed.

Table 33
Steps for installing a network expansion shelf (Part 1 of 2)

Step	Action
1	Determine the cabinet and shelf location of the Network shelf to be installed.
2	Unpack and inspect the shelf.
3	Remove the existing left or right rear Peripheral Equipment (PE) shelf (if required).
4	Install the additional Network shelf in the PE (Step 3) location.
5	Install a QUD15 cooling unit directly below the Network shelf and secure with four mounting screws.

Table 33
Steps for installing a network expansion shelf (Part 2 of 2)

6	Install and connect the QCAD172A power cable to the added QUD15 cooling unit as follows: If the added QUD15 is located below the left Network shelf, unplug the C11 connector from the QCAD111 power harness that connects to the existing left side QUD15. If the added QUD15 is located below the right Network shelf, unplug the C21 connector from the QCAD111 power harness instead of the C11. • Plug the C11 or C21 connector into the single-ended connector of the QCAD172A power cable. • Plug one of the two connectors at the other end of the C11 or C21 connector that was removed. • Plug the remaining connector of the QCAD172A power cable into the added QUD15.
7	At the QCAD111 power wiring harness, untie and then connect: • the C17 power connection cable to the ***right*** rear Network shelf • the C19 power connection cable to the ***left*** rear Network shelf
8	Install PRA trunks and enter related shelf and PRI office data into switch memory.

Installing a Common Equipment (CE) expansion shelf

This procedure is used to install the Common Equipment (CE) expansion shelf (QSD73). When removing a shelf or tier, the equipment in the cabinet should be configured in a manner that allows the removal of the top tier. In certain cases it may be necessary to reassign the existing equipment.

Ensure that the proper commercial power line cord is installed before adding an expansion shelf.

Service is interrupted for approximately 30 minutes when adding a shelf to an operating system equipped with shields for suppression of Electromagnetic Interference (EMI). Perform a data dump using LD 43 before proceeding.

Table 34
Steps for installing a Common Equipment expansion shelf (Part 1 of 8)

Step	Action
1	Remove the front and rear cabinet panels.
2	If system is equipped with EMI shields, set the CAB INP breaker on the QUX19 or QUX21 power distribution unit to the OFF position.
3	Set the breaker on the QUX20 unit (QUX21 unit in a QCA137 PE cabinet) for the new shelf to the OFF position.
	The designations on the breakers (PE1 through PE6) correspond to connectors on the power cables at rear of cabinet. See Figures 3 and 4 for shelf position alignments.
4	Perform this step only if the cabinet is equipped with EMI shields. Tag and disconnect cables from all connectors A through G at the rear of the cabinet and remove the existing EMI shields.
5	This step applies only to certain cabinets containing Common Equipment. If not previously installed, install an expansion QUX20 power distribution unit.
6	Remove the louvered top assembly from the cabinet by removing the six screws through the top of the assembly (two screws at each end and two at the center).
7	Remove the side panels from each end of the existing top shelf of the cabinet by sliding the panels upward (Figure 25 on page 106).
8	Remove the four hex screws at each end of the top shelf securing the top panel to the cabinet (Figure 25 on page 106).

Table 34
Steps for installing a Common Equipment expansion shelf (Part 2 of 8)

Step	Action
	CAUTION Ensure that the wiring to the thermostat located on the underside of the top panel is not damaged while performing Step 9.
9	Remove top panel and place towards rear of cabinet. Ensure that the wiring to the thermostat is routed towards rear of cabinet.
10	With self-tapping screws supplied, secure a joiner plate (two screws each) to each end of the existing top shelf cabinet (Figure 25 on page 106).
11	Ensure that the spacers installed in the top of each of the two front corner uprights of the cabinet are not removed (Figure 25 on page 106).
12	Reinstall the two cabinet side panels by sliding them down in the grooves located in the uprights at each end of the cabinet. The flange on the side panels should be positioned at the top facing towards the inside of the cabinet.
13	Unpack the new shelf.
14	Set the new shelf on top of the existing shelf with both ends overlapping the joiner plates.

Table 34
Steps for installing a Common Equipment expansion shelf (Part 3 of 8)

Step	Action
15	Install a spacer bar between the bottom front rail of the new shelf and the top front rail of the existing top shelf as follows (Figure 25 on page 106). • Tilt the new shelf slightly backwards. • Position the spacer bar with the cut-out on the left and facing outward (Figure 25 on page 106) in the groove along the top front of the existing shelf. • Lower the new shelf onto the spacer bar with the top rail of the bar in the groove on the bottom of the new shelf.
16	Align the new shelf with the existing shelf and secure to the joiner plates with two screws each.
17	Perform this step only if a QSD73 expansion shelf is being added. • Remove the screws securing the EMI shield (if equipped) to the rear of the QSD73 shelf and remove shield. • Connect a QCAD306 power cable adapter as shown in Figure 26 on page 107 to the QPC699 backplane.
18	If equipped, remove EMI shield from the new shelf.
19	This step applies only to cabinets equipped with a QCAD276 or QCAD277 power cable.

Table 34
Steps for installing a Common Equipment expansion shelf (Part 4 of 8)

Step	Action
	Connect power connector from the QCAD276 or QCAD277 power cable to power connector J on the backplane (or to the QCAD306 power cable adapter from a QPC699 backplane) according to shelf position in cabinet (Figure 27 on page 108). • Connector PE2 from the QCAD276 cable connects to backplane in position 2. • Connector PE3 from the QCAD276 cable connects to backplane in position 3. • Connector PE4 from the QCAD277 cable connects to backplane in position 4. • Connector PE5 from the QCAD277 cable connects to backplane in position 5.
20	This step applies only to cabinets equipped with a QCAD276 or QCAD277 power cable.

Table 34
Steps for installing a Common Equipment expansion shelf (Part 5 of 8)

Step	Action
	If not previously installed, connect the other end of the power cable as follows: **QCAD276 power cable.** • Connector P3 to J3 at the rear of the QUAA3 power unit. • Black leads equipped with ring connections to the GRD2 lug on the ground bus near the rear of the QUAA3 unit. • White leads equipped with ring connections to the GRD1 lug on the ground bus. • The red lead (designated 2) equipped with a spade connector to TB5 terminal 2 at the rear of the QUX20 unit. • The blue lead (designated 3) equipped with a spade connector to TB5 terminal 3 at the rear of the QUX20 unit. **QCAD277 power cable.** • Connector P4 to J4 at the rear of the QUAA3 power unit. • Connector P7 to J7 at the rear of the QUAA3 power unit (remove existing plug from J7).
21	This step applies only to cabinets equipped with a QCAD308 or QCAD313 power cable (PE cabinet).

Table 34
Steps for installing a Common Equipment expansion shelf (Part 6 of 8)

Step	Action
	Connect power connector from the QCAD308 or QCAD313 power cable to power connector J on the backplane according to shelf position in cabinet (Figure 4). • Connector PE1 from the QCAD308 cable connects to backplane in position 1. • Connector PE2 from the QCAD308 cable connects to backplane in position 2. • Connector PE3 from the QCAD308 cable connects to backplane in position 3. • Connector PE4 from the QCAD308 cable connects to backplane in position 4. • Connector PE5 from the QCAD313 cable connects to backplane in position 5. • Connector PE6 from the QCAD313 cable connects to backplane in position 6.
22	This step applies only to cabinets equipped with a QCAD313 power cable.
	Connect the following from the QCAD313 power cable. • Connector P4 to J4 at the rear of the QUAA3 power unit. • Connector P7 to J7 at the rear of the QUAA3 power unit (remove existing plug from J7). • Black leads equipped with ring connections to the GRD2 lug on the ground bus near the rear of the QUAA3 unit. • White leads equipped with ring connections to the GRD1 lug on the ground bus. • The red lead equipped with a spade connector to TB2 terminal 9 at the rear of the QUX21 unit. • The blue lead equipped with a spade connector to TB2 terminal 10 at the rear of the QUX21 unit.

Table 34
Steps for installing a Common Equipment expansion shelf (Part 7 of 8)

Step	Action
23	Reinstall top panel and secure to top shelf with four hex screws at each end.
24	Install the two shelf side panels by sliding them down in the grooves located in the uprights at each end of the new shelf. The flange on the side panels should be positioned at the top facing towards the inside of the cabinet.
25	If QUD24 cooling units are required, install units and cabinet top assembly. If QUD24 cooling units are not required, reinstall the louvered top assembly on top of new shelf and secure with six screws through the top.
26	If previously removed, reinstall EMI shields and reconnect any tagged cables (if previously disconnected).
27	If required, install the EMI shield on the new shelf.
28	Perform this step only if service has been interrupted on the system or in the cabinet. Set the CAB INP breaker on the QUX19 unit (CE cabinet) or on the QUX21 unit (PE cabinet) to the ON position. When setting the breaker to ON in a CE cabinet a system reload will occur. In a PE cabinet service will be restored to the cabinet.
29	Install the required circuit cards in the shelf.
30	Install the cables to the cross-connect terminal (if required).

Table 34
Steps for installing a Common Equipment expansion shelf (Part 8 of 8)

Step	Action
31	Set the PE breakers for the new shelf to ON. The designations on the breakers located on the QUX20 or QUX21 power distribution unit correspond to connectors PE1 through PE6 on the power distribution cables to the shelves at the rear of the cabinet.

Figure 25
Shelf assembly

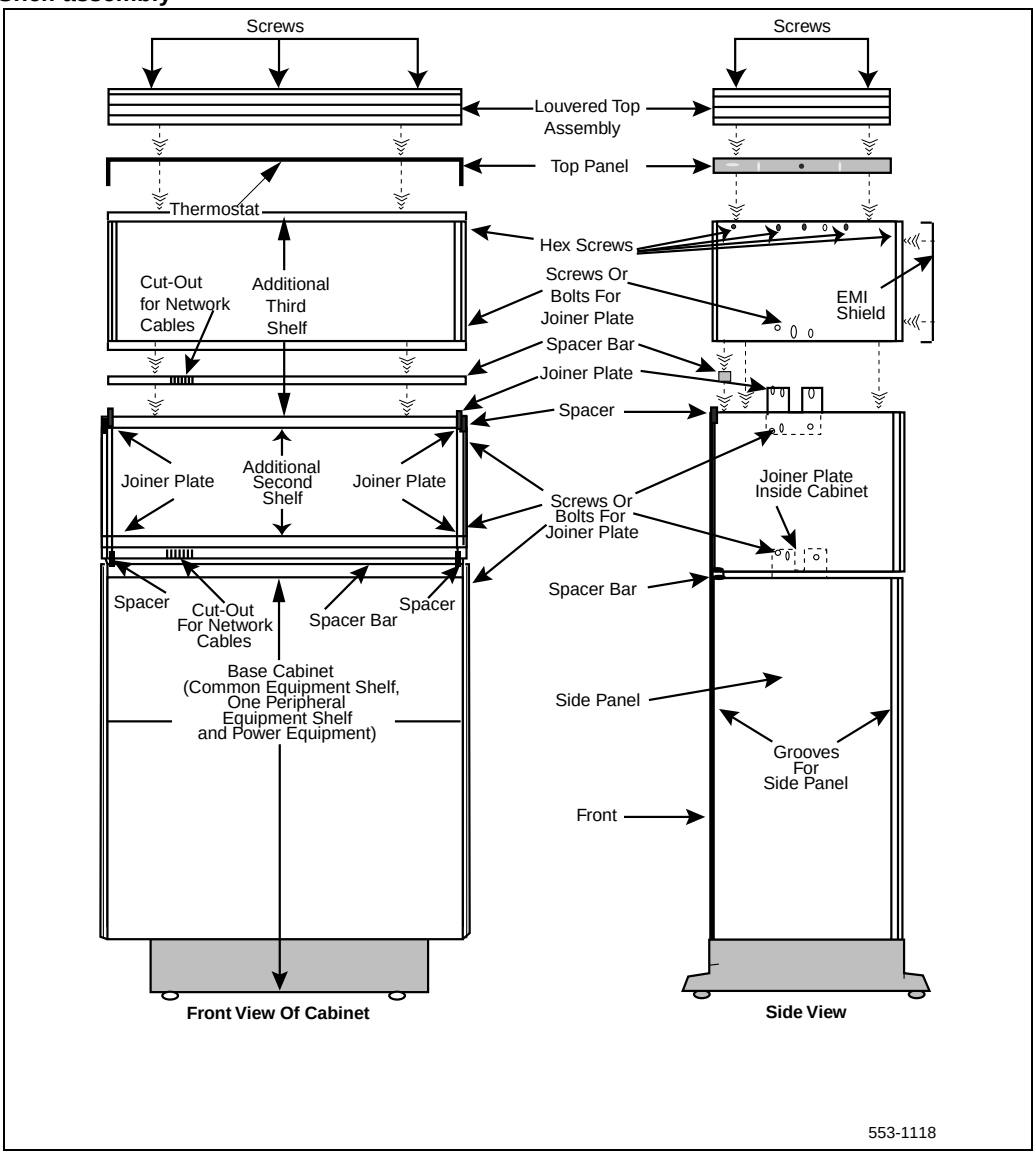


Figure 26
Power connections to QPC699 backplane

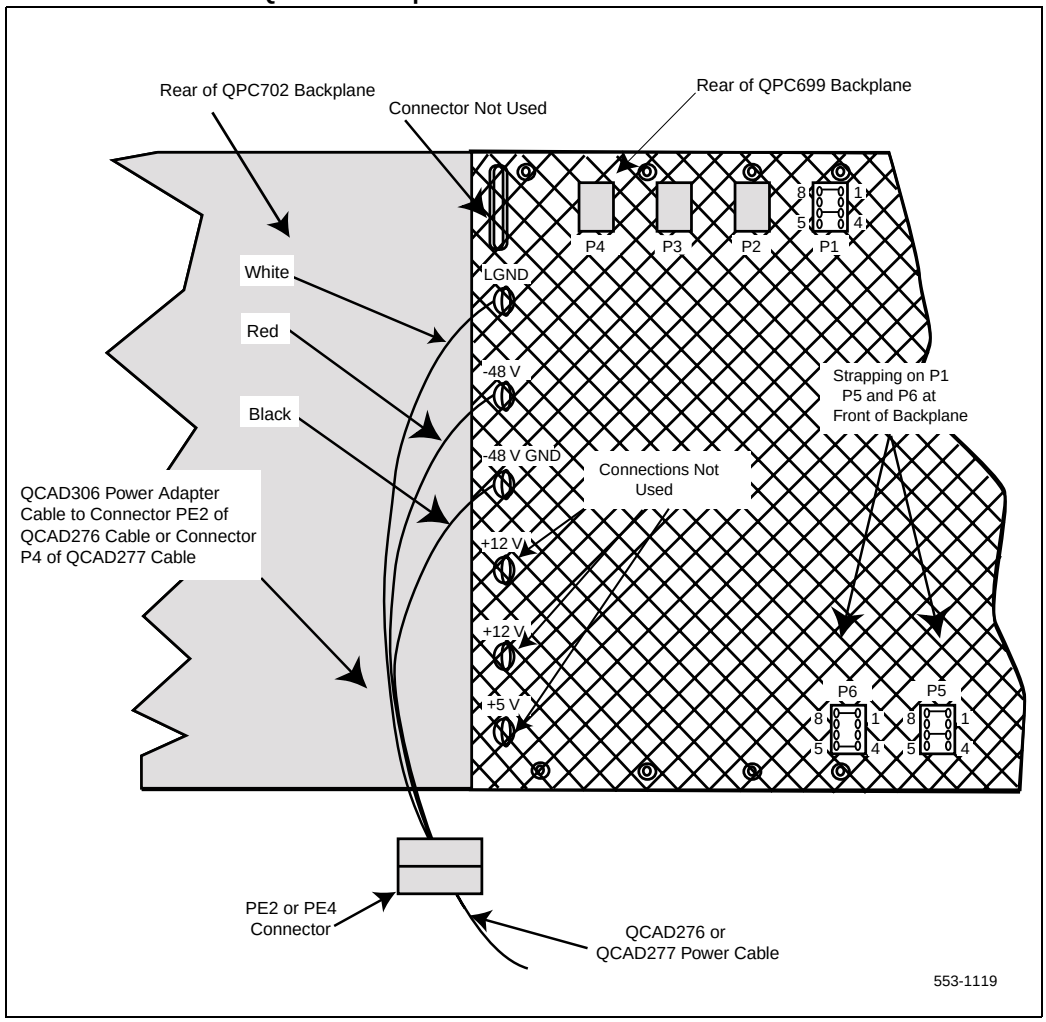
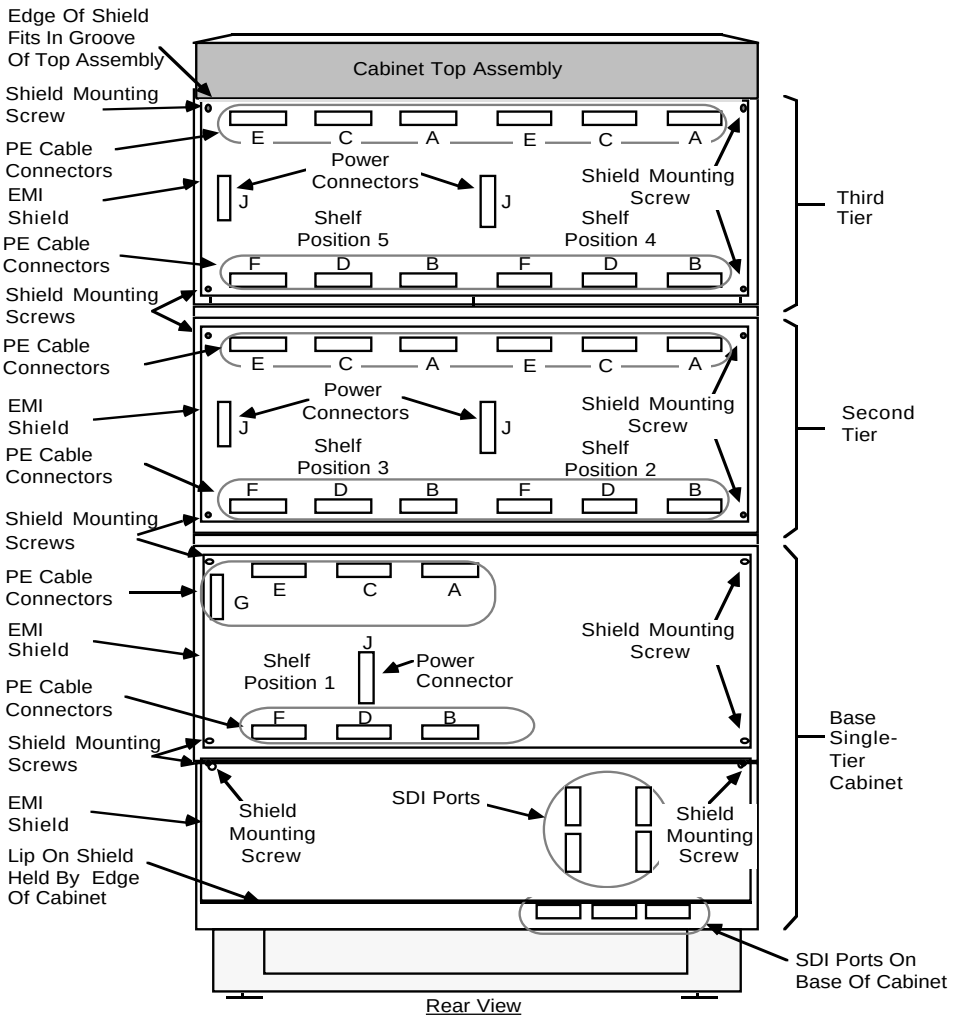


Figure 27
Rear view of Common Equipment cabinet



Note: Connectors on systems not equipped with EMI shields are on the shelf backplane.

553-1120

NTCK43 DPRI

Setting up the NTCK43

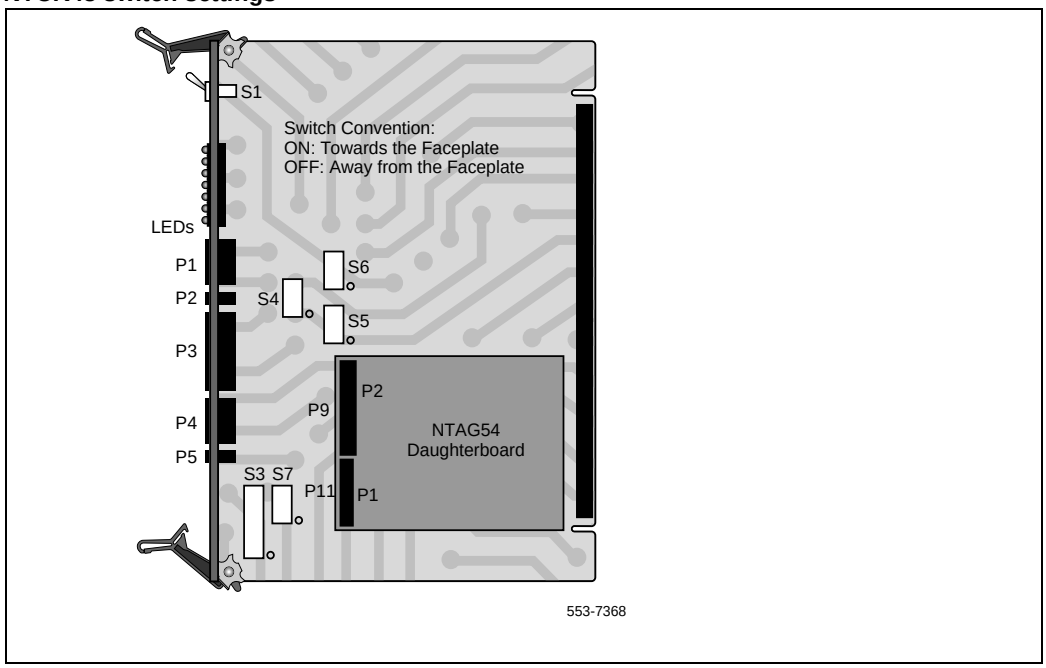
NTCK43 circuit card locations

Each NTCK43 DPRI circuit card requires 1 slot on a shelf. DPRI cards can be placed in any network slot.

NTCK43 switch settings

Figure 28 on page 109 depicts the NTCK43 DPRI switch settings.

Figure 28
NTCK43 switch settings



The NTCK43 DPRI card has 6 switches, namely S1 to S6. These control the following functions:

S1: Faceplate Switch

S1 is the Faceplate Switch and corresponds to the ENET enable switch. Refer to Table 35 on page 110.

Table 35
Faceplate switch setting - S1

Switch	UP	DOWN
S1	Dual PRI Enabled	Dual PRI Disabled

S2: Clock Controller Functions

Note: Switches S2 to S6 follow the convention for ON/OFF as follows:

ON is Towards the Faceplate.

OFF is Away from Faceplate.

Four options are available. Table 36 on page 110 gives a summary of the S2 switch settings. Refer to the “Clock Controller Options” section in the “Integrated Digital Access (IDA) equipment overview” chapter in this book for further information.

Note: S2(3-4) are not presently used.

Table 36
Clock Controller settings - S2

S2-1	S2-2	Clock Options
OFF	OFF	Option 1
OFF	ON	Option 2
ON	OFF	Option 3
ON	ON	Option 4

S3: On-board DDCH address switch

This switch sets the address of the DDCH daughterboard only. It does not set the address of external D Channel handlers which are used with the Dual PRI. If external D Channel handlers are used then their address is set on the external DCHI card itself.

Also, this section does not cover the S3 switch settings for DPRIs using the NTAG54AA daughterboard. Please refer to "S3 AND S7: On-board NTAG54 address switch settings" on page 112 of this document. The DDCH is a two-unit MSDL Daughterboard, supporting Unit 0 and Unit 1 only.

This address corresponds to the DNUM (0-15) that is assigned to Unit 0 of the DDCH during configuration. As a DDCH has 2 D Channels it is half the capacity of the MSDL but then it does not take up a cardslot. Address 0 is not normally assigned to the DDCH as it is commonly assigned to the System Terminal TTY0.

The DDCH Address (0-15) is set on S3 lower 8 switch positions, S3 (1-8) in Binary format, i.e. S3-1 is the Least Significant Bit. Thus S3 positions 5-8 will be always ON (towards the faceplate). DDCH address can be in the range binary 0000 (Zero) to 1111 (Fifteen).

If the DDCH is not installed then the address set on the S3 switch does not matter. However if the DDCH is installed but not used then the address set on S3 should not conflict with any other DCHI address.

> ***Note:*** S3 (9-10) are not used and are spare.
>
> ***Note:*** The DDCH Address is set by setting the relevant positions of S3 to OFF.

Example 1: Setting up an address (DNUM) of "15" for the DDCH requires switch S3 positions 1, 2, 3 & 4 away from the Faceplate (OFF) and setting S3 positions 5-8 towards the Faceplate (ON).

Example 2: Setting up an address (DNUM) of "9" for the DDCH requires switch S3 positions 1 & 4 away from the Faceplate (OFF) and setting S3 positions 2,3, 5-8 towards the Faceplate (ON).

Table 37 on page 112 gives a summary of the S3 on-board switch functions.

Table 37
Summary of on-board DDCH switch functions - S3

Switch	ON	OFF
S3-(1-8)	-	DDCH address
S3-9	Spare	Spare
S3-10	Spare	Spare

Note: S7 is not used with the DDCH daughter board (NTBK51) so all S7 switches should be set to "OFF" deactivating address matching in NT addressing mode.

S3 AND S7: On-board NTAG54 address switch settings

These switches reside on the NTAG54AA daughterboard.

The DPRI supports two PRI ports. S3 sets the DASS2/DPNSS1 address (DNUM) for the higher of the two ports on the board. S7 sets the corresponding DASS2/DPNSS1 address (DNUM) for the lower of the two ports on the board.

Table 38
SW3 NTAG54AA on-board switch settings

Switch	Switch settings	
SW3: Port 1	**SW3.8**	**SW3.9**
Synchronous, D-Channel, NT addressing	**ON**	OFF
Synchronous, D-Channel, Expanded GPT addressing	OFF	OFF
Not used	**ON**	**ON**
Port disabled	OFF	**ON**

Table 39
SW7 NTAG54AA on-board switch settings

Switch	Switch settings	
SW3: Port 1	**SW7.8**	**SW7.9**
Synchronous, D-Channel, NT addressing	**ON**	OFF
Synchronous, D-Channel, Expanded GPT addressing	OFF	OFF
Not used	**ON**	**ON**
Port disabled	OFF	**ON**

If the NTAG54 is installed but not used then the address set on S3 and S7 should not conflict with any other address.

The following settings, as shown in Table 40 on page 113, apply to either SW3 (for port 1) or SW7 (for port 0) on the DPRI NTCK43AB (or higher vintage) motherboard when the card is in normal addressing mode.

Table 40
S3, S7 NTAG54AA witch settings, normal addressing mode (Part 1 of 2)

DASS2/ DPNSS1 address (DNUM)	**Switch Setting S3 or S7**							
	S7.1 or S3.1	S7.2 or S3.2	S7.3 or S3.3	S7.4 or S3.4	S7.5 or S3.5	S7.6 or S3.6	S7.7 or S3.7	S7.10 or S3.10
0	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	X
1	OFF	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	X
2	**ON**	OFF	**ON**	**ON**	**ON**	**ON**	**ON**	X
3	OFF	OFF	**ON**	**ON**	**ON**	**ON**	**ON**	X
4	**ON**	**ON**	OFF	**ON**	**ON**	**ON**	**ON**	X
5	OFF	**ON**	OFF	**ON**	**ON**	**ON**	**ON**	X

Table 40
S3, S7 NTAG54AA witch settings, normal addressing mode (Part 2 of 2)

DASS2/ DPNSS1 address (DNUM)	Switch Setting S3 or S7							
6	**ON**	OFF	OFF	**ON**	**ON**	**ON**	**ON**	X
7	OFF	OFF	OFF	**ON**	**ON**	**ON**	**ON**	X
8	**ON**	**ON**	**ON**	OFF	**ON**	**ON**	**ON**	X
9	OFF	**ON**	**ON**	OFF	**ON**	**ON**	**ON**	X
10	**ON**	OFF	**ON**	OFF	**ON**	**ON**	**ON**	X
11	OFF	OFF	**ON**	OFF	**ON**	**ON**	**ON**	X
12	**ON**	**ON**	OFF	OFF	**ON**	**ON**	**ON**	X
13	OFF	**ON**	OFF	OFF	**ON**	**ON**	**ON**	X
14	**ON**	OFF	OFF	OFF	**ON**	**ON**	**ON**	X
15	OFF	OFF	OFF	OFF	**ON**	**ON**	**ON**	X
16-31					OFF	**ON**	**ON**	X
32-47					**ON**	OFF	**ON**	X
48-63					OFF	OFF	**ON**	X
64-79					**ON**	**ON**	OFF	X
80-95					OFF	**ON**	OFF	X
96-111					**ON**	OFF	OFF	X
112-127					OFF	OFF	OFF	X

The following settings, as shown in Table 41 on page 115, apply to either SW3 (for channel 1) or SW7 (for channel 0) on the DPRI NTCK43AB (or higher vintage) motherboard when the card is in expanded mode.

Table 41
S3, S7 NTAG54AA witch settings, extended addressing mode (Part 1 of 2)

DASS2/ DPNSS1 address (DNUM)	Switch Setting S3 or S7							
	S7.10 or S3.10	S7.1 or S3.1	S7.2 or S3.2	S7.3 or S3.3	S7.4 or S3.4	S7.5 or S3.5	S7.6 or S3.6	S7.7 or S3.7
0	**ON**	**ON**	OFF	**ON**	**ON**	**ON**	**ON**	**ON**
1	OFF	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**
2	**ON**	OFF	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**
3	OFF	OFF	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**
4	**ON**	**ON**	OFF	**ON**	**ON**	**ON**	**ON**	**ON**
5	OFF	**ON**	OFF	**ON**	**ON**	**ON**	**ON**	**ON**
6	**ON**	OFF	OFF	**ON**	**ON**	**ON**	**ON**	**ON**
7	OFF	OFF	OFF	**ON**	**ON**	**ON**	**ON**	**ON**
8	**ON**	**ON**	**ON**	OFF	**ON**	**ON**	**ON**	**ON**
9	OFF	**ON**	**ON**	OFF	**ON**	**ON**	**ON**	**ON**
10	**ON**	OFF	**ON**	OFF	**ON**	**ON**	**ON**	**ON**
11	OFF	OFF	**ON**	OFF	**ON**	**ON**	**ON**	**ON**
12	**ON**	**ON**	OFF	OFF	**ON**	**ON**	**ON**	**ON**
13	OFF	**ON**	OFF	OFF	**ON**	**ON**	**ON**	**ON**
14	**ON**	OFF	OFF	OFF	**ON**	**ON**	**ON**	**ON**
15	OFF	OFF	OFF	OFF	**ON**	**ON**	**ON**	**ON**
16	**ON**	**ON**	**ON**	**ON**	OFF	**ON**	**ON**	**ON**

Table 41
S3, S7 NTAG54AA witch settings, extended addressing mode (Part 2 of 2)

DASS2/ DPNSS1 address (DNUM)	Switch Setting S3 or S7							
17	OFF	**ON**	**ON**	**ON**	OFF	**ON**	**ON**	**ON**
18	**ON**	OFF	**ON**	**ON**	OFF	**ON**	**ON**	**ON**
19	OFF	OFF	**ON**	**ON**	OFF	**ON**	**ON**	**ON**
20	**ON**	**ON**	OFF	**ON**	OFF	**ON**	**ON**	**ON**
21	OFF	**ON**	OFF	**ON**	OFF	**ON**	**ON**	**ON**
22	**ON**	OFF	OFF	**ON**	OFF	**ON**	**ON**	**ON**
23	OFF	OFF	OFF	**ON**	OFF	**ON**	**ON**	**ON**
24	**ON**	**ON**	**ON**	OFF	OFF	**ON**	**ON**	**ON**
25	OFF	**ON**	**ON**	OFF	OFF	**ON**	**ON**	**ON**
26	**ON**	OFF	**ON**	OFF	OFF	**ON**	**ON**	**ON**
27	OFF	OFF	**ON**	OFF	OFF	**ON**	**ON**	**ON**
28	**ON**	**ON**	OFF	OFF	OFF	**ON**	**ON**	**ON**
29	OFF	**ON**	OFF	OFF	OFF	**ON**	**ON**	**ON**
30	**ON**							
31	OFF	OFF	OFF	OFF	OFF	**ON**	**ON**	**ON**
32-63						OFF	**ON**	**ON**
64-95						**ON**	OFF	**ON**
96-127						OFF	OFF	**ON**
128-159						**ON**	**ON**	OFF

Note: addresses 3D00H-3FFFH are never used. The original extended mode system architecture only allowed a maximum of 5 groups to be configured.

S4: Tx/Rx grounding options

Switch S4 provides the option to connect Frame Ground (FGND) to the carrier cable shield of the receive and / or transmit pair. This option is used in Some 75 Ohm applications. Table 42 on page 117 gives a summary of the switch settings.

For 120 Ohm applications S4 (1-4) are set to OFF.

Table 42
Summary of on-board DDCH switch functions - S3

Switch	ON	OFF
	(Switch closed)	*(Switch open)*
S4-1	PRI 0 Rx Shield Grounded	PRI 0 Rx Shield Open
S4-2	PRI 0 Tx Shield Grounded	PRI 0 Tx Shield Open
S4-3	PRI 1 Rx Shield Grounded	PRI 1 Rx Shield Open
S4-4	PRI 1 Tx Shield Grounded	PRI 1 Tx Shield Open

S5-6: Impedance matching

CCITT recommendations provide options for the use of either 75 Ohm coaxial or 120 Ohm twisted pair cable. Both of these impedances are provided by the line interface. The impedance is switch selectable. Table 43 on page 117 gives a summary of the switch settings.

Table 43
Summary of on-board DDCH switch functions – S3

Switch	ON	OFF
S6 (PRI unit 0)	75 ohm	120 ohm
S5 (PRI unit 1)	75 ohm	120 ohm

Installing the NTCK43 DPRI

CAUTION WITH ESDS DEVICES
The static discharge bracelet located inside the cabinet must be worn before handling circuit cards. Failure to wear the bracelet can result in damage to the circuit cards.

1 Determine the cabinet and shelf location where the Dual PRI is to be installed. The Dual PRI can be installed in any Network slot.

2 Unpack and inspect circuit cards.

3 Set the option switches on the DPRI circuit card before installation. Refer to “NT8D72 DIP switch settings” on page 90.

S1 (faceplate switch) must be OFF when installing the Dual PRI otherwise an M1 Initialise may occur. S1 on the Dual PRI corresponds to the faceplate switch on the QPC414 Network card.

4 Install DPRI circuit card in the assigned shelf and slot.

The faceplate LEDs should flash 3 times.

Enable faceplate switch S1. This is the “Loop Enable” switch.

5 If required, install I/O adapters in I/O panel.

6 Run and connect the DPRI cables (refer to the “Cabling requirements” section if required).

7 If required, install connecting blocks at MDF or wall mounted cross-connect terminal.

8 If required, designate connecting blocks at MDF or wall mounted cross-connect terminal.

9 If required, install Network Channel Terminating Equipment (NCTE).

10 Run PRI Verification Test.

11 Add related office data into switch memory. Refer to the work order and *Networking Features and Services* (553-2901-301).

12 Run PRA status check. Refer to *ISDN PRI: Maintenance* (553-2901-501) for the PRA verification tests, DPRI self-test, PRA status check, and PRA start-up test.

Removing the NTCK43 DPRI

CAUTION WITH ESDS DEVICES
The static discharge bracelet located inside the cabinet must be worn before handling circuit cards. Failure to wear the bracelet can result in damage to the circuit cards.

1 Determine the cabinet and shelf location of the DPRI card to be removed.

2 If the DPRI card is being completely removed, not replaced, remove data from memory. See *Networking Features and Services* (553-2901-301).

3 Disable Network Loop using LD 60. The command is DISL “loop number.”

The associated DCHI may have to be disabled first. The faceplate switch S1 should not be disabled until both PRI loops is disabled first.

4 Remove cross connections at MDF to wall-mounted cross-connect terminal.

5 Tag and disconnect cables from card.

Rearrange Clock Controller cables if required.

6 Remove the Dual PRI card only if both loops are disabled. Faceplate switch S1 must be in the OFF (DIS) position before the card is removed, otherwise M1 will initialise.

Note: If the other circuit of a Dual PRI card is in use, DO NOT remove the card.

7 Pack and store the DPRI card and circuit card.

Clock Controller installation and removal

Contents

This section contains information on the following topics:

Setting up the QPC775 121
QPC775A/B/C/D switch settings 121
QPC441 3PE card switch settings 125
Clock controller shelf locations 126
Installing or replacing the QPC775 on Meridian 1 system Options 51C, 61C 126
Installing or replacing the QPC775 or NTRB53 on Meridian 1 system Options 81C/81C CP PII 132

Setting up the QPC775

QPC775A/B/C/D switch settings

The switch settings for the QPC775A/B/C/D Clock Controller card are shown in Figure 29 on page 122 and Table 44 on page 122.

Figure 29
QPC775A/B/C/D switch settings

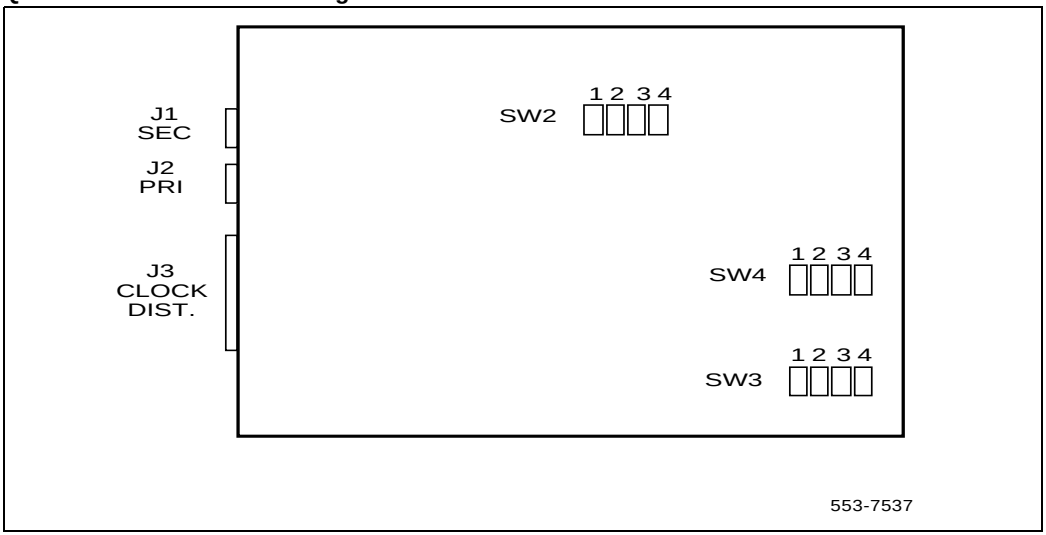


Table 44
QPC775A/B/C/D

System Model	Switch 1 1 2 3 4	Switch 2 1 2 3 4	Switch 4 1 2 3 4
81C, 81C CP PII	OFF	OFF	ON
51C,61C	ON	OFF	ON

The switch settings for the QPC775E Clock Controller card are shown in Figure 30 on page 123 and described in Table 45 on page 124.

Figure 30
QPC775E switch settings

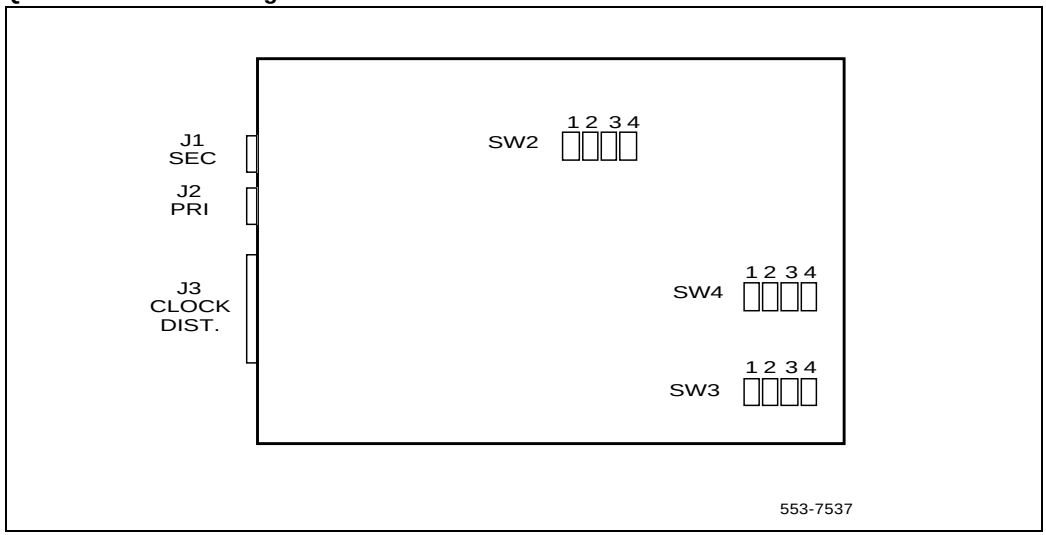


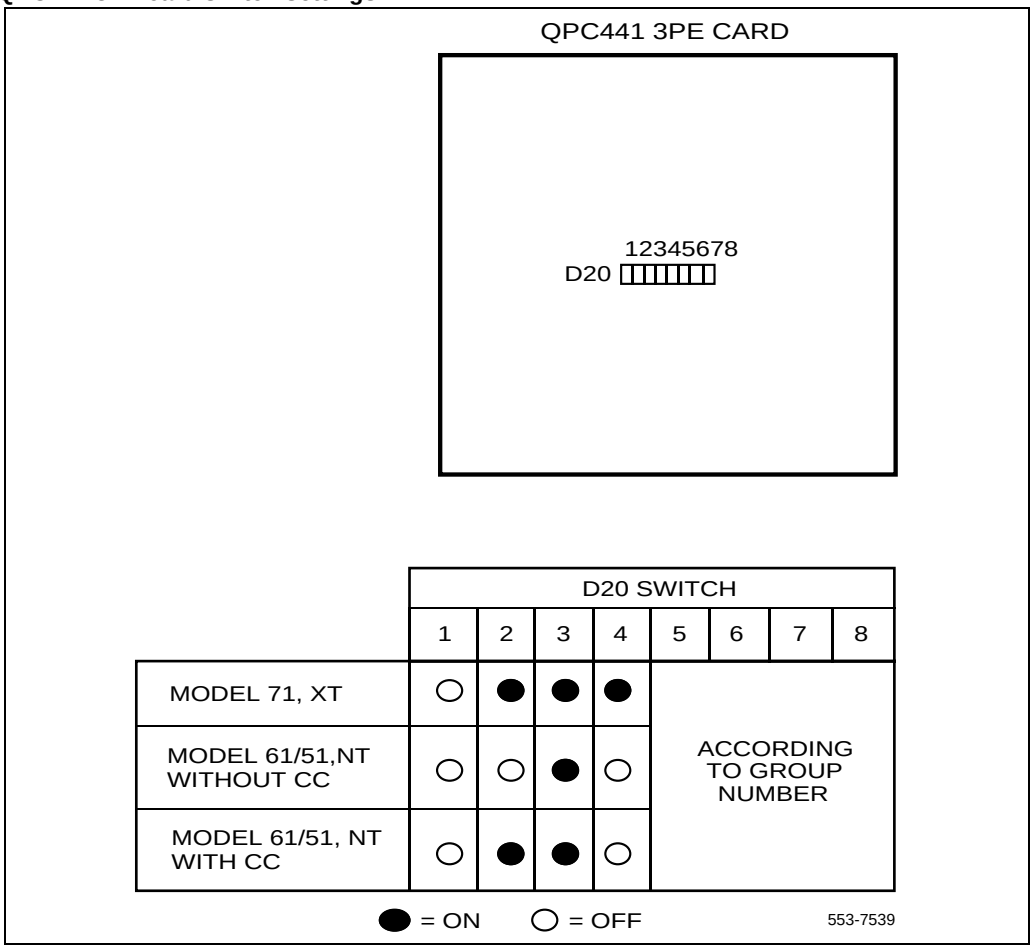
Table 45
QPC775E switch settings

System	SW1	SW2	SW4			
	1 2 3 4	1 2 3 4	1	2	3	4
81C, 81C CP PII	OFF	OFF	OFF	**ON**		
Cable length between faceplate connectors:						
0 - 4.3 m					OFF	OFF
4.6 - 6.1 m					OFF	**ON**
6.4 - 10.1 m					**ON**	OFF
10.4 - 15.2 m					**ON**	**ON**

QPC441 3PE card switch settings

The Three-Port Extender (3PE), used in Meridian 1 system Options 51C, 61C, and 81C/81C CP PII, extends CPU data, address and control signals between one segmented network shelf (half-group) and a QPC215 Segmented Bus Extender on a CPU shelf. For the QPC441 3PE cards in Network Shelves housing Clock Controller cards, the switch settings shown in Figure 31 on page 125 are set.

Figure 31
QPC441 3PE card switch settings



Clock controller shelf locations

Table 46 on page 126 list the shelf locations of the QPC775 clock controller on Meridian 1 systems.

Table 46
Shelf and slot location for the QPC775 in NT or system Options 51/51C, 61/61C

System	Shelf	Slot
51C and 61C	NT6D39 CPU/Network Module	9 (dedicated)

Table 47
Shelf and slot location for the QPC775 or NTRB53 in system Options 81C/81C CP PII

System	Shelf	Slot
81C/81C CP PII	NT8D34 Network Module	14

Note: On Option 81C/81C CP PII systems, QPC775E or NTRB53AA must be used.

Installing or replacing the QPC775 on Meridian 1 system Options 51C, 61C

Table 48 on page 127 outlines the steps used to install or replace the QPC775 Clock Controller card in Meridian 1 system Options 51C, 61C.

CAUTION
Service Interruption
Do not deviate from this procedure. Deviation will not cause the switch to SYSLOAD or initialize, but will stop call processing.

CAUTION
Service Interruption
If CC-0 is to be replaced, CC-1 and CPU-1 must be active. Similarly, if CC-1 is to be replaced, CC-0 and CPU-0 must be active.

Table 48
Steps for installing or replacing the QPC775 Clock Controller in Meridian 1 Options 51C, 61C (Part 1 of 6)

Step	Action	Response
1	Determine the cabinet and shelf location of the circuit card to be installed. **Refer to the "Clock controller shelf locations" section.**	
2	Unpack and inspect circuit cards.	
3	Set option switches and insert option plugs on the Clock Controller being added. SW2 - OFF SW3 - OFF SW4 (1,2) - ON ***Note:*** "ON" in switch setting also means "1" or "CLOSED". "OFF" in switch setting also means "0" or "OPEN".	
4	For the QPC441 3PE cards in Network Shelves housing Clock Controller cards: Set option switch position 1 to OFF, and positions 2, 3, and 4 to ON. (Refer to QPC441 3PE card schematic.)	

Table 48
Steps for installing or replacing the QPC775 Clock Controller in Meridian 1 Options 51C, 61C (Part 2 of 6)

Step	Action	Response
5	On the Clock Controller being added, set faceplate toggle switch to DISABLE.	
6	When replacing an existing Clock Controller, make sure the existing card is software disabled, using LD 60.	***Note:*** ERR20 messages may be generated. These can usually be ignored. However, excessive clock switching should be avoided, especially when counters are near the maintenance or out-of-service thresholds. Excessive switching could generate threshold-exceeded messages or cause the PRI to be automatically disabled.
7	Check the counters in LD 60. If necessary, reset the counters using the RCNT command.	
8	On the Clock Controller being replaced, set the faceplate toggle to DISABLE.	
CAUTION Call processing will cease if the CC-to-CC cable (J3 connector) is connected and BOTH Clock Controller cards are disabled by their faceplate switches		

Table 48
Steps for installing or replacing the QPC775 Clock Controller in Meridian 1 Options 51C, 61C (Part 3 of 6)

Step	Action	Response
9	Disconnect cables from Clock Controller card.	If the Clock Controller to Clock Controller cable (connector J3) is disconnected, the card in the active shelf will be active. The clock cannot be switched unless this cable is connected at both ends. The clock status display will indicate NO UART (no universal asynchronous receiver transmitter). This is normal, however, do not perform a clock status check when receiving this code.

Table 48
Steps for installing or replacing the QPC775 Clock Controller in Meridian 1 Options 51C, 61C (Part 4 of 6)

Step	Action	Response
10	Remove card from shelf.	If the Clock Controller card is removed from the active shelf, the Peripheral Shelf (PS) card will distribute clock. If: • the Clock Controller to Clock Controller cable (connector J3) is disconnected, and the faceplate switch of the Clock Controller in the active shelf is or becomes disabled Then: • clock control will become disabled and the PS card will distribute clock, and when clock status is read by the CPU, the
11	Install replacement Clock Controller in the same slot. The Clock Controller card can also be plugged into the active shelf without switching the CPU.	

Table 48
Steps for installing or replacing the QPC775 Clock Controller in Meridian 1 Options 51C, 61C (Part 5 of 6)

Step	Action	Response
12	Run and connect cables: • Always set the faceplate switch to DISABLE before removing or installing the CC-to-CC cable (J3 connector), but remember, call processing will cease if the cable is connected and BOTH Clock Controllers are disabled. • Connect Primary reference to J2. • If available, connect Secondary reference to J1. • Connect cables cable between Clock Controllers (J3 to J3), for Meridian 1 system Option 61 only.	
13	Set faceplate toggle switch to ENABLE.	
14	Turn off DISABLE LED using LD 60 and the ENL command.	
15	Add related office data into switch memory.	
16	Repeat steps 2 to 14 for second Clock Controller.	

Table 48
Steps for installing or replacing the QPC775 Clock Controller in Meridian 1 Options 51C, 61C (Part 6 of 6)

Step	Action	Response
17	To track on a primary or secondary reference clock, use LD 60. The command is: TRCK PCK (for Primary) SCK (for Secondary) FRUN (for Free-Run) **Tracking on a Reference Clock:** The Clock Controller will be in free-run mode when enabled. It should stay in this mode for several minutes before being switched to tracking mode.	

Installing or replacing the QPC775 or NTRB53 on Meridian 1 system Options 81C/81C CP PII

Table 49 on page 133 outlines the steps used to install or replace the QPC775 Clock Controller card in Meridian 1 system Options 81C/81C CP PII.

CAUTION
Service Interruption
Do not deviate from this procedure. Deviation will not cause the switch to SYSLOAD or initialize, but will stop call processing.

CAUTION
Service Interruption
If CC-0 is to be replaced, CC-1 and CPU-1 must be active. Similarly, if CC-1 is to be replaced, CC-0 and CPU-0 must be active.

Table 49
Installing or replacing the QPC775 Clock Controller in Meridian 1 Options 81C/81C CP PII (Part 1 of 6)

Step	Action	Response
1	Determine the cabinet and shelf location of the circuit card to be installed. **Refer to the "Clock controller shelf locations" section.**	
2	Unpack and inspect circuit cards.	
3	Set option switches and insert option plugs on the Clock Controller being added. SW2 - OFF SW3 - OFF SW4 (1,2) - ON ***Note:*** "ON" in switch setting also means "1" or "CLOSED". "OFF" in switch setting also means "0" or "OPEN".	
4	For the QPC441 3PE cards in Network Shelves housing Clock Controller cards: Set option switch position 1 to OFF, and positions 2, 3, and 4 to ON (refer to QPC441 3PE card schematic).	
5	On the Clock Controller being added, set faceplate toggle switch to DISABLE.	

Table 49
Installing or replacing the QPC775 Clock Controller in Meridian 1 Options 81C/81C CP PII (Part 2 of 6)

Step	Action	Response
6	When replacing an existing Clock Controller, make sure the existing card is software disabled, using LD 60.	***Note:*** ERR20 messages may be generated. These can usually be ignored. However, excessive clock switching should be avoided, especially when counters are near the maintenance or out-of-service thresholds. Excessive switching could generate threshold-exceeded messages or cause the PRI to be automatically disabled.
7	Check the counters in LD 60. If necessary, reset the counters using the RCNT command.	
8	On the Clock Controller being replaced, set the faceplate toggle to DISABLE.	
CAUTION Call processing will cease if the CC-to-CC cable (J3 connector) is connected and BOTH Clock Controller cards are disabled by their faceplate switches		

Table 49
Installing or replacing the QPC775 Clock Controller in Meridian 1 Options 81C/81C CP PII (Part 3 of 6)

Step	Action	Response
9	Disconnect cables from Clock Controller card.	If the Clock Controller to Clock Controller cable (connector J3) is disconnected, the card in the active shelf will be active. The clock cannot be switched unless this cable is connected at both ends. The clock status display will indicate NO UART (no universal asynchronous receiver transmitter). This is normal, however, do not perform a clock status check when receiving this code.

Table 49
Installing or replacing the QPC775 Clock Controller in Meridian 1 Options 81C/81C CP PII (Part 4 of 6)

Step	Action	Response
10	Remove card from shelf.	If the Clock Controller card is removed from the active shelf, the Peripheral Shelf (PS) card will distribute clock. If: • the Clock Controller to Clock Controller cable (connector J3) is disconnected, and the faceplate switch of the Clock Controller in the active shelf is or becomes disabled Then: • clock control will become disabled and the PS card will distribute clock, and when clock status is read by the CPU,
11	Install replacement Clock Controller in the same slot. The Clock Controller card can also be plugged into the active shelf without switching the CPU.	

Table 49
Installing or replacing the QPC775 Clock Controller in Meridian 1 Options 81C/81C CP PII (Part 5 of 6)

Step	Action	Response
12	Run and connect cables: • Always set the faceplate switch to DISABLE before removing or installing the CC-to-CC cable (J3 connector), but remember, call processing will cease if the cable is connected and BOTH Clock Controllers are disabled. • Connect Primary reference to J2. • If available, connect Secondary reference to J1. • Connect cables cable between Clock Controllers (J3 to J3), for Meridian 1 system option 61 only.	
13	Set faceplate toggle switch to ENABLE.	
14	Turn off DISABLE LED using LD 60 and the ENL command.	
15	Add related office data into switch memory.	
16	Repeat steps 2 to 14 for second Clock Controller.	

Table 49
Installing or replacing the QPC775 Clock Controller in Meridian 1 Options 81C/81C CP PII (Part 6 of 6)

Step	Action	Response
17	To track on a primary or secondary reference clock, use LD 60. The command is: TRCK PCK (for Primary) SCK (for Secondary) FRUN (for Free-Run) **Tracking on a Reference Clock:** The Clock Controller will be in free-run mode when enabled. It should stay in this mode for several minutes before being switched to tracking mode.	

APNSS installation

Contents

This section contains information on the following topics:

APNSS configurations 139
Dedicated mode using leased line 140
Dedicated mode using dial-up modem 141
Dedicated mode using DTI2 trunks 141
Modem settings for APNSS 142

APNSS configurations

The Analog Private Network Signaling System (APNSS) operates in various forms of dedicated mode operation. These are:

- Dedicated mode using a leased line
- Dedicated mode using a dial-up modem
- Dedicated mode using DTI2 trunks

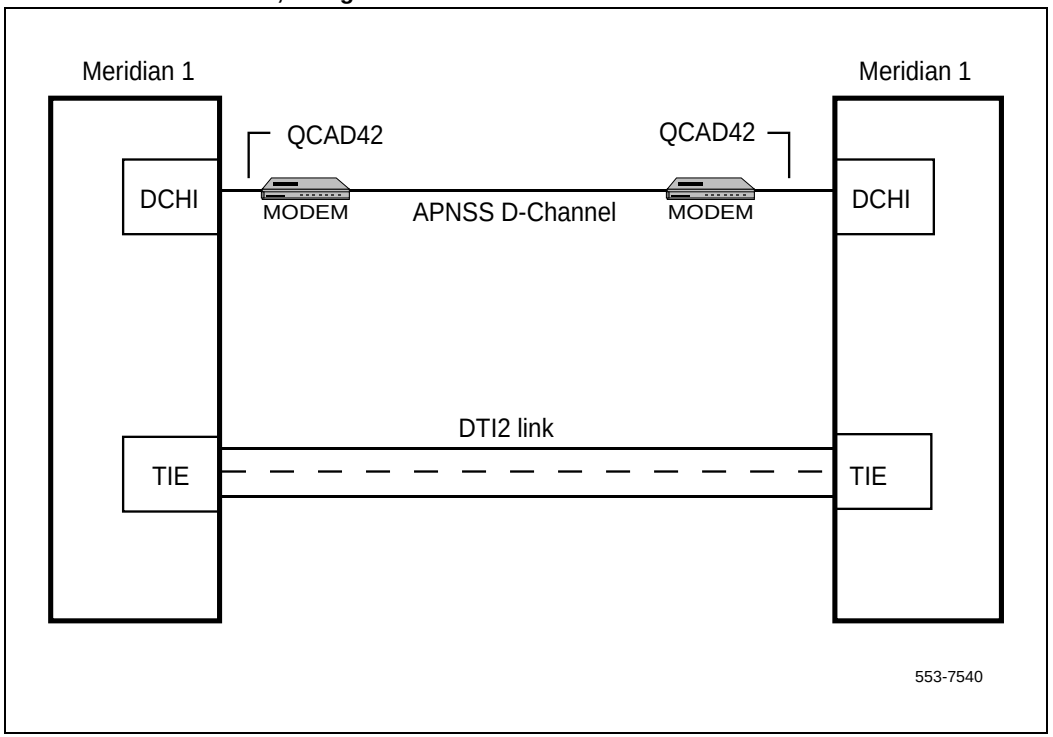
In dedicated mode, the DCHI supports APNSS trunks using DPNSS1 signaling. The D-channel communicates with the far end using a dedicated leased line, dial-up modem, or DTI2 trunk.

Dedicated mode using leased line

In this configuration, the D-channel connects the DCHI to a modem which communicates with a far-end modem over a dedicated leased line. Both modems must be set in the synchronous mode.

Figure 32 on page 140 shows APNSS in dedicated mode using a leased line.

Figure 32
APNSS dedicated mode, using leased line



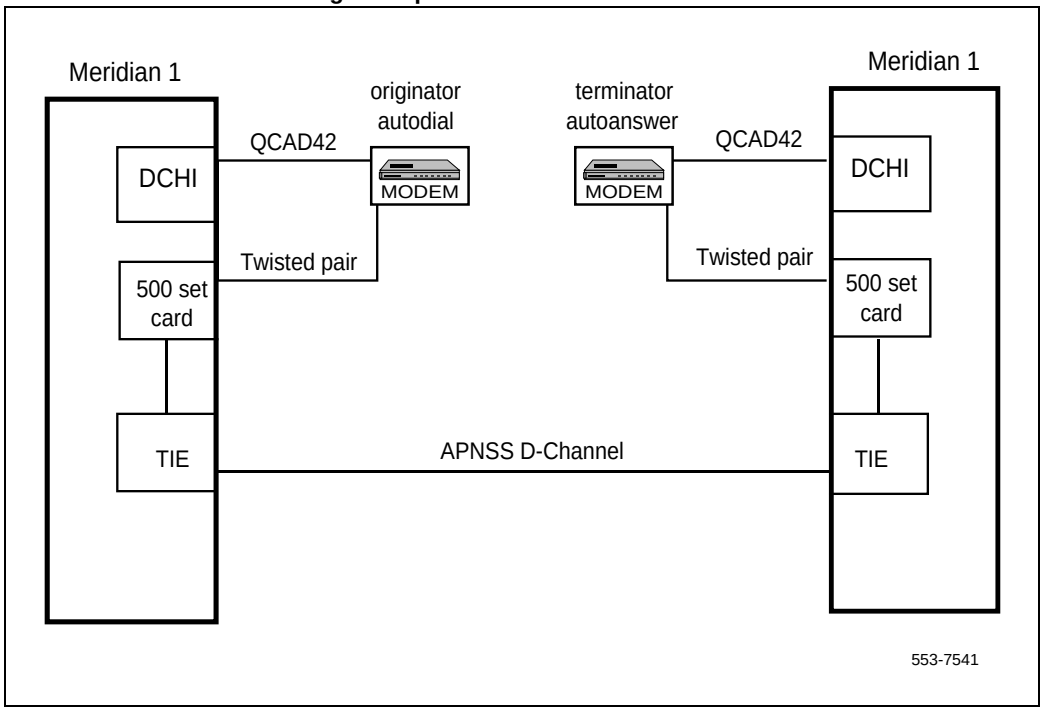
Dedicated mode using dial-up modem

In this configuration, the DCHI is connected to a modem which is connected to a 500-set line card. The call is connected to the far end through the 500-set to TIE-trunk path.

To set up the D-Channel, program the modem at one end in the auto-dial mode, so it will automatically initiate a call to the other end at power up. The auto-dial DN must be coordinated with personnel at the far-end switch.

Figure 33 on page 141 shows APNSS in dedicated mode using a dial-up modem.

Figure 33
APNSS dedicated mode using dial-up modem



Dedicated mode using DTI2 trunks

This configuration is the same as that for dedicated mode using dial-up modem, described previously in this section.

Modem settings for APNSS

Two modems have been tested and approved by Nortel Networks for APNSS applications:

- BT 4242VSX modem
- Datel 4960FTX modem

BT 4242VSX modem switch and strap settings

If the BT 4242VSX modem is used, set the switch option strap settings as shown in Table 50 on page 142 and Table 51 on page 142.

Table 50
4242VSX switch settings

SW1	**ON**	OFF	OFF	**ON**	OFF	OFF	**ON**	OFF
SW2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SW3	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SW4	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SW5	**ON**	**ON**	**ON**	OFF	OFF			
SW6	OFF	OFF	OFF	**ON**				

Table 51
4242VSX strap settings

LKA	X Y-Z
LKB	U-V W
LKC	R S-T

Datel 4960FTX modem switch and strap settings

If the Datel 4960FTX modem is used, set the switch and option strap settings as shown in Table 52 on page 142 and Table 53 on page 143.

Table 52
4960FTX switch settings

SW1	**ON**	**ON**	**ON**	**ON**	OFF	OFF	OFF	OFF

Table 53
4960FTX strap settings

SK3	**ON**
SK4	OFF
LKA	Strap on bottom two pins
LKB	Strap on bottom two pins
LKC	Strap on top two pins
LKD	Strap on two pins to the right
LKH	Strap on two pins to the left
LKJ	Strap on two pins to the left

Meridian 1 and Succession Communication Server for Enterprise 1000

DPNSS1

Installation Guide

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